

GOVERNMENT OF INDIA
MINISTRY OF PRODUCTION



THE REPORT

OF

**THE AMBAR-CHARKHA ENQUIRY
COMMITTEE**

1956

We beg to submit our report upon the Ambar charkha.

2. Our report covers the technical and economic aspects of the problem, in accordance with the terms of reference.

3. Appreciating the desire of Government, and the need to enable Government to take decisions upon the pressing aspects of the over-all textile position, and upon the programmes including the mill, handloom, and charkha programmes for the current year, we have already submitted to Government our conclusions and recommendations on May 25. We understand that our recommendations have in the main been found acceptable to Government.

4. In the short time at our disposal, and in view particularly of the incompleteness of the tests and experiments connected with the Ambar charkha, we have necessarily had to depend upon somewhat inadequate data. While there is reasonably adequate data available upon several of the matters referred to our Committee, on some matters on the other hand the data is very inadequate. We have emphasised the need for continuing the experiments, on an increasing scale, and of watching closely and assessing the results obtained. Despite these limitations, we believe that the recommendations we have made will be found both realistic and practical, as well as in keeping with the need of the country to move towards a decentralised economy and local self-sufficiency within reasonable limits, to provide increasing and increasingly gainful employment, and to attain a socialist economy.

5. We feel it our duty to draw special attention towards the organisational aspects of the problem. Some of the organisational aspects have been mentioned in our recommendations. We consider these recommendations necessary to ensure a reasonable prospect of success for the Ambar charkha programme.

6. Although we were constituted by Government in separate groups to consider the technical and economic aspects respectively, the two parts of the Committee have, with the consent of all the members, worked as one. The technical and economic aspects of the problem are too closely inter-related for each to be dealt with in isolation.

7. We may point that during the very early stages of its deliberations, the Committee came to the unanimous decision that the differing views of the members of the Committee on each one of the different terms of reference should be recorded without mentioning

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the names of members who hold such views. Consequently in the body of the report itself views expressed by the minority group in the Committee have been specifically mentioned. All the members of the Committee have signed the report since it contains the views expressed both by the majority as well as the minority. One member, Shri N. Mazumdar who was not present at the meeting when the report was finalised has not signed.

8. Our recommendations are unanimous.

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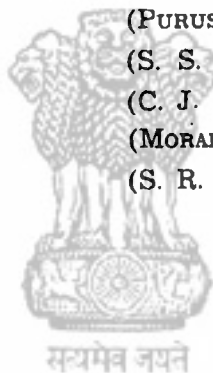
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NEW DELHI;

23rd June, 1956.



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INTRODUCTORY

Genesis

In pursuance of the conclusions and suggestions of the Standing Committee of the National Development Council, the Planning Commission constituted, on the 28th June, 1955, a Committee called the Village and Small-Scale Industries (Second Five-Year Plan) Committee, under the chairmanship of Prof. D. G. Karve. This Committee was asked to prepare an industry-wise scheme for the utilisation of the resources to be earmarked for the development of village and small industries in the Second Plan. This scheme was to be in keeping with the provision made in the draft plan frame and in the light of the recommendations made by the panel of economists. The basic approach of the plan frame and of the panel of economists envisaged a pattern of economy composed chiefly of small decentralised units of economic activity. Any increase in the scale required in any field was to be brought about chiefly through the organisation of co-operatives. Centralisation and large-scale operation was to be adopted only to the extent necessary to derive appropriate advantage from modern technology. This decentralised pattern of economy was recommended as appropriate to the development of village and small scale industries and as fitting in with the idea of a socialist pattern of society.

2. In conformity with this basic approach to the question of village and small-scale industries, the Karve Committee in its report published in October, 1955, strongly recommended that production of yarn required for the additional production of cloth during the Second Plan period estimated at 1400 to 1700 million yards of cloth should be organised on a decentralised basis to the greatest extent possible. A corollary to this recommendation was that production by mills and power looms should be limited to the level already reached i.e., 5,000 million yards and 200 million yards respectively and all additional cloth requirement during the period of the Plan should be met by the expansion of handloom production.

3. At the time when the Karve Committee was carrying out its investigations, cotton spinning on a decentralised basis was done mostly by the ordinary spinning wheel, commonly known as the traditional charkha. The Karve Committee realised that if the entire yarn supplies to meet the additional requirements of cloth in the period of the Second Plan were to be organised on a decentralised basis, a much higher level of technique would have to be introduced in the cotton spinning equipment. Although, during the course of recording evidence, the Karve Committee was informed of the work that had already been initiated for improving a small-scale spinning unit equipment like the Ambar charkha and the other units associated with the names of Shri Gupte and Shri Kale, it felt that the information then available regarding the mechanical soundness and performance of these units and the quality and general acceptability of the yarn obtained from them was too meagre to enable it to express any

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definite opinion about the feasibility of meeting the yarn requirements for additional cloth production from small spinning units, operating on a decentralised basis. About the middle of 1955 the All India Khadi and Village Industries Board had prepared a comprehensive programme for the production of the entire additional quantity of yarn required during the Second Plan through the Ambar charkha. A summary is contained in Appendix I. The Karve Committee was, however, of the opinion that technical and organisational experiments connected with the Ambar charkha should continue to be pursued with vigour and the position reviewed in April or May, 1956, when the results of the experiments which were in the process of being conducted would be finally known.

4. Soon after the All-India Khadi and Village Industries Board had first chalked out its draft Ambar charkha programme, Government requested the Ahmedabad Textile Industries Research Association, Ahmedabad and the Technological Laboratory of the Central Cotton Committee at Matunga, two leading textile technological laboratories in India, to conduct experiments in order to assess:—

- (i) the technical efficiency of the Ambar charkha including its mechanical soundness, ease in operation and repair and capacity to produce sufficient quantities of yarn; and
- (ii) the quality of the yarn produced and its acceptability to the handloom weaver who has hitherto been accustomed to weave with mill-spun reeled yarn.

Copies of some letters written to the laboratories on this subject are in Appendix XII. In addition to these laboratory tests, Government also sanctioned in November, 1955, a series of field tests, under a pilot project to be implemented by the All-India Khadi and Village Industries Board through the Sarva Seva Sangh. The terms of reference were the same as those of the laboratory tests. Both the laboratories and the All-India Khadi and Village Industries Board were required to submit their findings to Government by the end of April, 1956.

Appointment & Terms of reference of the Ambar Charkha Enquiry Committee

5. With a view to collate the data from the technological laboratories and from the pilot scheme of the Khadi and Village Industries Board and with a view to adequately appraise the findings of the research and experiments conducted, the Government of India, early in March, 1956, decided to set up a special committee of enquiry. Government considered that in order to enable it to assess the merits of the Ambar charkha programme which was referred to in the report of the Karve Committee, it is necessary to make an assessment by carrying out experiments and enquiries.

In pursuance of this, Government by their Resolution No. 12-Cot. Ind. (1) (3)/55, dated the 5th March, 1956, constituted a Committee with the following members:—

Chairman

- (1) Production Secretary.

Members

- (2) Shri Krishandas Gandhi, Sarva Seva Sangh, Wardha.
- (3) Shri A. S. E. Iyer, Secretary, All India Handloom Board, Bombay.
- (*4) Shri Purushottam Kanji, Chairman, Bombay State Finance Corporation & Chairman Bombay State Wage Board.
- (5) Shri N. Mazumdar, Industrial Adviser, Textile Production, Office of the Textile Commissioner, Bombay.
- (6) Shri C. J. Soneji, Textile Technologist and Industrial Chemist, Bombay.
- (7) Shri S. R. Vasavada, General Secretary, Textile Labour Association, Ahmedabad.

Mrs. P. Johari, Deputy Secretary, Ministry of Production, was appointed as Secretary to the Committee.

The Committee was required to report, *inter-alia*, on the following points:—

- (a) whether the different tools or machines comprising the Ambar charkha set are capable of being worked with hand;
- (b) whether a normal adult can work them for 8 hours, with reasonable intervals of rest, say 15 minutes after every 2 hours and a recess of one or two hours after 4 hours, without any particular feeling of fatigue;
- (c) whether the charkha can give a production of about 8 hanks of yarn, starting from the carding of cotton; or a production of about 16 hanks if the rovings are separately prepared and supplied for 8 hours' effective work, by a person who has received training for 6 weeks and has regularly practised on the charkha for a further period of 6 weeks;
- (d) whether the tools or machines are capable of producing yarn of coarse, medium and fine counts with necessary adjustments, the range being 6 to 18, 18 to 32 and 32 to 48;
- (e) whether the yarn is fairly even for the purpose of weaving on handlooms i.e., it does not result in too many breakages while passing through the reeds, because of variations in the counts;
- (f) whether the yarn is fairly strong for the purpose of weaving on handlooms, i.e. it does not give any particular difficulty in sizing and weaving; whether it is capable of being woven more or less as easily as the average reeled yarn available to handloom weavers and with more or less as much speed;
- (g) the availability of different varieties of cotton for producing different counts of yarn and to indicate which varieties of cotton are suitable for spinning different counts with the Ambar charkha set;
- (h) what counts of cloth of specified reeds and picks could be woven on the handloom from Ambar charkha yarn and which from mill yarn;

* Appointed *vice* Shri P. N. Bhutta, General Manager, Empress Mills, Nagpur, who expressed his inability to work on the Committee due to his pre-occupations.

- (i) the percentage of waste at different stages in spinning and weaving compared with similar wastage in producing mill yarn of identical counts from the same variety of cotton.

6. Subsequent to the issue of the notification under reference, Government, after further consideration, came to the conclusion that the economic aspects of the Ambar charkha programme were so closely linked with the technological aspects that a full and comprehensive enquiry must necessarily take into account both facets of the problem. In fact, this Committee, at its very first meeting had made a recommendation to this effect to Government. Accordingly, Government by their Resolution No. 12(3)/56-Cot. Ind. I, dated the 2nd of May, 1956, appointed a sub-committee of the Ambar Charkha Enquiry Committee to investigate the economic aspects of the programme.

This sub-committee was composed of the following:—

Chairman

- (1) Production Secretary.

Members

- (2) Shri S. V. Aiyar, Chief Cost Accounts Officer to the Government of India, Ministry of Finance.
- (3) Shri H. B. Bhar, Deputy Secretary, Ministry of Finance (P.E.N. Division).
- (4) Dr. Gian Chand, New Delhi.
- (5) Shri Morarji Vaidya, President, Indian Merchants' Chamber and President, Indian Manufacturers' Association.

The terms of reference of the sub-committee were to investigate the economic implications of supplying yarn manufactured by the Ambar charkha for the handloom industry, indicating:—

- (a) cost of production of yarn;
- (b) subsidy required for the production and distribution of yarn;
- (c) subsidy required for the production and distribution of the Ambar charkha;
- (d) the difference in the cost of supplying yarn to the handloom weavers as between yarn manufactured by the Ambar charkha and the yarn reeled by mills; and
- (e) the income of the individual spinner operating the Ambar charkha.

Assumptions

7. Before describing the procedure adopted for conducting the investigations involved, it is necessary to set down the basic assumptions on which the Committee has acted. These are:—

- (i) Government's policy towards a decentralised economy; a decentralised production as far as possible; and specifically a decentralised textile industry, from cotton to cloth, including marketing; and an effort to meet as much as possible of the total additional cloth requirements in

(v)

the period of the Second Plan through decentralised spinning and weaving;

(ii) the need to provide more employment; and

(iii) progress towards a socialist State.

8. A decentralised economy and an insurance against enforced idleness are among the important requirements of a socialist State. Decentralisation, apart from creating the most propitious atmosphere for diminishing economic and social inequalities, has a special significance in the background of the very large volume of unemployment obtaining in India today. In fact, in a society where there is excess of man-power on the one hand and on the other, a dearth of opportunities for utilising this man-power, expansion of employment becomes an end in itself; or at least, an end and an objective to which a high priority must inevitably be accorded. Decentralisation in the economic field, diffusion of industry and the adoption of labour intensive modes of production are some of the ways of expanding employment opportunities. The large incidence of unemployment and under-employment has inevitably lowered the per capita national income and depressed the standard of living. Decentralisation by harnessing a resource which is the most abundant in this country, namely, man-power, presents a remedy to the greatest drawback in the evolution of a socialist State.

In order not to lose altogether the advantages of large-scale mechanised production and in consideration of the need to reduce the country's dependence on import of capital goods, the decentralised method of production must apply mainly to consumer goods. In the case of heavy basic industries, in fact, there should be no question of suggesting that considerations of economic and technological efficiency be set aside in deference to the emphasis on employment.

Decentralisation, combined with as great a degree as possible of village self-sufficiency, specially in the matter of essential commodities like food and cloth, help to protect the economy against external economic pressure and the stresses of war. This aspect is also important.

The Committee has set down its recommendations for the consideration of Government in the belief that decentralisation and an accent on the creation and expansion of employment opportunities take the country further towards the goal of a socialist State.

Procedure of Enquiry

9. The first meeting of the Committee was held in Delhi on the 13th of March, 1956. A questionnaire on the technological aspects of the Ambar charkha and yarn produced thereon was finalised and issued to the Ahmedabad Textile Industries Research Association, the Laboratory of the Central Cotton Committee, Matunga and to the All India Khadi and Village Industries Board. It was also decided to extend the laboratory tests to 4 other institutes concerned with textile technology. These were the Krishna Rajendra Silver Jubilee Technological Institute, Bangalore, the Bengal Textile Institute, Serampore, the Kala Bhavan, Baroda and the Textile Institute, Kanpur. The questionnaire for assessing the technical potentialities of the Ambar Charkha was, therefore, issued to those four institutes

also. The All India Khadi and Village Industries Board was requested to supply the improved model of the Ambar Charkha and trained personnel to each of the new institutes, as also to the technological laboratory at Matunga for conducting experiments. The design of the experiments was to be framed after joint consultation between the Directors of Institutes, the All India Khadi and Village Industries Board, the Ambar Samiti, Wardha and a representative of the Textile Commissioner. The Committee visited the Ahmedabad Textile Industries Research Association and the Technological Laboratory of the Central Cotton Committee, Matunga and studied for itself the tests and experiments conducted there. It also held discussions with the Directors of the two laboratories. It also interviewed the Chairman and other representatives of the All India Khadi and Village Industries Board as regards the data then available in respect of the field tests.

10. The Committee also inspected, on the spot, the work done in selected *Parishramalyas* (training *cum* production centres) run under the pilot project of the All India Khadi & Village Industries Board. Despite the limitations of time, the Committee was able to visit nine of these training *cum* production centres:—

- One in Gujarat,
- One in P.E.P.S.U.,
- Two in Punjab,
- One in Andhra, and
- Four in Madras.

The Committee was also able to inspect two of the 15 *Vidyalyas* opened by the Board under their pilot scheme. During its visits to the *Parishramalyas*, the Committee collected a few samples of yarn, as also some samples of cloth, wherever available and sent them for independent testing to the Textile Institutes. Some yarn in bulk produced at the *Parishramalyas* was also acquired by the Committee for the purpose of having its weavability tested by handloom weavers who had hitherto been accustomed to mill yarn only. Apart from sending an officer of the Committee's Secretariat to collect and tabulate data received from the Board's *Parishramalyas*, the Committee also conducted an independent study of the working of one selected *Parishramalya* for a period of 5 days, during the course of which relevant data was collected by a textile expert, specifically deputed for the purpose.

11. Soon after the expansion of its terms of reference, to include the economic aspects of the Ambar Charkha programme and the appointment of the Economic Sub-Committee, a second questionnaire dealing with costs and financial implications was issued to the Directors of the 6 textile laboratories, the All-India Khadi & Village Industries Board, the Directors of Industries in all States, the Schools of Economics in Bombay and Delhi and a few economists of repute.

12. Although the Economic Sub-Committee was set up by Government as a separate entity, having a separate set of terms of reference, the two sections namely the technological and economic, considered all the terms of reference as one Committee, in view of the fact that

the technological and economic aspects of the Ambar charkha programme are inextricably inter-linked.

13. During its tour, the Committee also availed of opportunities to see demonstrations of other small units invented for spinning yarn on a decentralised basis. These were Shri Sathe's pedal charkha and the four-spindle charkha, manufactured by Messrs Sunder Dass Saw Mills, Bombay. Such of the members of the Committee as were available in Delhi also observed a demonstration of the domestic spinning unit prepared by the Textool Co. Ltd., Coimbatore. The only charkha other than the Ambar charkha which the Committee considered worth examining further was the one produced by the Sunderdas Saw Mills, Bombay. This particular charkha of which only one or two prototype exist so far has been under examination at A.T.I.R.A. A report received from A.T.I.R.A. on this Charkha is at Appendix XII. On the basis of the examination made so far the Ambar Charkha appears to be the better of the two.

During the course of its inquiry, some members of the public sent to the Committee their views and criticisms of the Ambar Charkha. These have been taken into consideration.

14. In addition to its first meeting on the 13th of March, the Committee met in Ahmedabad, Bombay, Rajpura, Adampur, Tirupur and Puttur. Its pen-ultimate session was held in Delhi on 21st, 22nd and 23rd May, 1956, when it considered seriatim, all terms of reference, both technological and economic and after duly weighing the data available, reached certain conclusions and made recommendations. The Committee authorised the Chairman to submit forthwith to Government, a summary of conclusions and recommendations adopted by it, to enable Government to proceed with its consideration, without further loss of time, of so important a matter like the decentralisation of the textile industry for meeting the additional requirements of cloth during the period of the Second Plan. The Committee's conclusions and recommendations were accordingly presented to Government on the 25th of May, 1956.

The Committee finally met on the 23rd of June, 1956, to consider and finalise the report.

1. CONCLUSIONS AND RECOMMENDATIONS

Conclusions on Terms of Reference and other points considered by the Committee.

1. *Whether the different tools or machines comprising the Ambar Charkha set are capable of being worked with hand?*

It is unanimously agreed that the answer is in the affirmative.

2. *Whether a normal adult can work the different tools or machines comprising the Ambar charkha set for 8 hours with reasonable intervals of rest—say for 15 minutes after every two hours and a recess of one or two hours after four hours, without any particular feeling of fatigue?*

The majority view (six members) is a categorical “yes” with the comment that the conditions in which the Ambar charkha will be worked, specially in village homes, are entirely different from the regular and comparatively regimented work periods in mills.

Of the minority, one member answers with a categorical “no” on the data available; while two consider that the fatigue element should be tested comparatively, with ordinary industrial working conditions, and that for this there is not enough data on which to judge.

(para 17).

3. *What is the daily quantity of yarn that can be produced?*
4. *Whether the charkha can give a production of about 8 hanks of yarn, starting from the carding of cotton; or a production of about 16 hanks, if the rovings are separately prepared and supplied, for 8 hours effective work, by a person who has received training for 6 weeks and has regularly practised on the charkha for further period of 6 weeks?*

The majority (six) view is that the Ambar charkha can give a production of 6 hanks on the average, from cotton to reeling; one considers, it would be 6 to 8; while the others consider that the figure of 6 could probably be somewhat improved upon by more practice and further experimenting.

Of the minority (three), one member considers that the figure, on experience and data, so far obtained, should be between 5 and 6 hanks but that there may be great possibilities and room for improvement; one considers it should be 5; and the third that it should be between 4 and 5 but that the experience and data is inadequate. One member has no opinion to express. The Committee is unanimous that productivity for spinning and reeling only would be about double that from cotton to reeling.

(paras 22 & 23).

5. *Whether the tools or machines are capable of producing yarn of coarse, medium and fine counts with necessary adjustments, the range being 6 to 18, 18 to 32 and 32 to 48?*

It is unanimously agreed that the Ambar charkha is well suited to producing up to 24 counts and is capable of producing up to 18 counts and somewhat higher counts. (para 25).

6. *Whether the yarn is fairly even for the purpose of weaving on handlooms i.e. it does not result in too many breakages while passing through the reeds because of variations in the counts?*
7. *Whether the yarn is fairly strong for the purpose of weaving on handlooms, that is, it does not give any particular difficulty in sizing and weaving; whether it is capable of being woven more or less as easily as the average reeled yarn, available to handloom weavers and with more or less as much speed.*

The majority (six) consider that the data assembled and experience gained indicate that Ambar yarn is fairly even and fairly strong for the purpose of weaving on handlooms; four of them consider that the data already available is reasonably adequate, while the other two add the rider that further experimenting should be carried on, to confirm the position. Of the minority (three), one feels that the data and experience so far are inconclusive; while two consider that on the data available, Ambar yarn is neither even enough nor of the right strength for use on handlooms. One member abstained from expressing any opinion. (para 40).

8. *What would be the production of a fly shuttle handloom using Ambar yarn, in an 8 hour day, when compared to production of cloth of comparable quality and specifications on a fly shuttle handloom using mill yarn.*

There is general agreement amongst the Committee that as compared with mill yarn, the productivity of Ambar yarn in weaving is less and may vary from 5 per cent to 25 per cent less than in the case of mill yarn. One member has assessed the production of Ambar yarn at an average of 12 yards per day on a fly shuttle loom, but is unable to compare it with mill yarn. Another member feels that there is not enough data at all to come to any conclusion on the point. Another member considers that Ambar yarn so far used in weaving is limited by being produced by spinners with inadequate experience and perhaps inadequate training. The use of Ambar yarn on handlooms as compared to mill yarn has not been sufficiently tried out or established. This underlines the fact that the stage is too early and that a great deal more of experimentation and experience are necessary, before the Committee can really come to any conclusion at all. (para 38).

9. *The availability of different varieties of cotton for producing different counts of yarn and to indicate which varieties of cotton are suitable for spinning different counts with Ambar charkha set.*

The Committee is unanimously of the view that all the commonly named varieties of cotton of staple lengths 3/4" to 7/8" are well suited for the Ambar Charkha. (para 43).

Subject to the import-export programme, the kinds of cotton cultivated and encouraged for growing and the achievement of the Second Plan targets for cotton growing, as a whole, enough cotton will probably be available for all the decentralised spinning that can be organised. (para 42).

10. *What kinds of cloth of specified reeds and picks could be woven on the handloom from Ambar charkha yarn and which from mill yarn?*

The majority (six) consider that by and large, the same kinds of cloth of equivalent reeds and picks and within the yarn counts, already considered as suitable, can be woven from Ambar yarn as from mill yarn; but two of them consider it necessary to make a reservation as to the quality of the cloth as compared to that woven from mill yarn; of the two others who have expressed an opinion, both consider that whereas cloth of a sort can be woven from Ambar yarn on handlooms, no conclusions can be drawn as to quality while one of the two feels that heavy reed/pick cloth which can be woven from mill yarn cannot, in any case, be woven from Ambar yarn. (para 41).

11. *The percentage of waste at different stages in spinning and weaving, compared with similar waste in producing mill yarn of identical counts from the same variety of cotton.*

The Committee is generally agreed that for equivalent counts using equivalent cotton broadly, whereas mill waste averages 17½ per cent, similar waste from the Ambar Charkha ranges between 12½ per cent to 15 per cent on the average. Of the 17½ per cent mill waste, about one third is trash and the remainder, that is between 11 per cent and 12 per cent, in all, is marketed as waste. In the case of the Ambar wastage, there is no adequate data to indicate as to what portion of the waste can either be re-used in the spinning process itself or otherwise. One member considers that of the mill waste, 50 per cent i.e. one half and not one third is trash. One member disagrees with the estimate of 12½ per cent to 15 per cent in the case of Ambar yarn and considers that the percentage of waste is, on an average 15. (para 50).

In the absence of any significant data, the Committee is unable to draw any conclusions, about the percentage of waste either in the case of Ambar yarn or in the case of mill yarn used in weaving. (para 47).

12. *The cost of production of yarn.*

The Committee has considered the question as to whether the cost of training should be reflected in the built-up cost of Ambar yarn and has come to the conclusion that cost of training should not be so included. The Committee agrees that the depreciation and maintenance element on the cost of the charkha unit itself is so small, per unit of production, that it is not worth including it in the cost of yarn. The cost of production of yarn is Rs. 2-14 per lb. for 18's, including handling charges with equivalent adjustments for other counts, depending on the cotton used.

(para 63).

13. *Subsidy required for the production and distribution of yarn.*

Towards the general intention of equalising market price of Ambar cloth, the Committee has considered the possibility of providing such equalisation by imposing a cess on mill yarn and possibly also on mill cloth and has come to the conclusion that a cess must be ruled out. The Committee is unanimously of the view that there should be a one-point subsidy and that it should be paid in respect of 25 per cent of the cloth produced for self-sufficiency, at production point and in respect of 75 per cent of the cloth produced for sale, at retail sale point. Four members are of the view that a subsidy of four annas in the rupee, for the present, at cloth point should be adequate to enable the Ambar cloth to be marketed to the extent of 75 per cent of the cloth produced. Three members are of the view that a slightly higher subsidy, approximately 5 annas in the rupee, may become necessary to enable the marketing of 75 per cent of Ambar cloth produced. Four members are of the view that a subsidy of at least 6 annas in the rupee will be necessary for the purpose and three of them are further of the view that even so, it is doubtful, whether all of the cloth produced can be marketed. The Committee considers that very careful administrative and organizational arrangements will be necessary, in order to implement the subsidy scheme.

(paras 65, 66, 67, 68 and 69).

14. *What are the working capital requirements for the production of Ambar cloth?*

Working capital required from cotton to cloth in the case of Ambar scheme and including the working capital required for the handloom involved, is estimated at approximately Rs. 500 per Ambar charkha set, employing two persons and combined with a handloom; but excluding the working capital required for stocking cotton seasonally; and including the working capital required for marketing the cloth. This sum of Rs. 500 per charkha set is equal to roughly 60 per cent of the annual production of Ambar cloth. (para 72).

15. *Subsidy required for the production and distribution of the Ambar charkhas.*

The Committee is unanimously agreed that some subsidy is necessary for the Ambar charkhas. In the first instance, the Ambar charkha set should be charged at full cost to the spinner to whom it is supplied, the cost being payable in easy instalments over five years, free of interest. It should be open to the appropriate agency authorised by Government when approximately half the cost has been recovered, to decide in the case of particular persons or class of persons, as to whether any part of the remaining half of the cost should be treated as subsidy. One of the main criteria in deciding upon the subsidy should be the use made of the charkha. In order to be eligible for the subsidy, the user of

the Ambar charkha must be able to show objectively that the Ambar charkha has been gainfully used to approximately 75 per cent of the rated capacity.

(para 58).

16. *What is the working capital required for the manufacture of Ambar charkhas?*

Working capital required for the manufacture and supply of Ambar charkhas is estimated at the rate of approximately 50 per cent of the cost of charkha sets to be made and supplied in any one year, that is, an amount equal to six months' production.

(para 59).

17. *The difference in the cost of supplying yarn to handloom weavers as between the yarn manufactured by the Ambar charkha and yarn reeled by the mills.*

The handloom weaver in the co-operative society gets his yarn of 18's delivered to him at Rs. 1/9/6 plus 6½ per cent as middle charges; whereas the weaver who is not in the co-operative society gets the yarn at Rs. 1/9/6 plus anything from 6½ per cent to 12½ per cent from the market on 18's with suitable variations for other counts. The production cost of a lb. of Ambar yarn of 18's is Rs. 2-14-0.

(para 64).

18. *The income of the individual spinner operating the Ambar charkha.*

A flat piece-rate of 1½ annas a hank for all counts, for the present, would be reasonable, based on spinning counts for 16's to 32's. It is possible that this may encourage spinners to prefer lower counts below 16's down to 12's; therefore, it will be necessary to watch the situation closely and to revise the rate for the lower counts, if such a trend is found. Similarly, the situation will have to be watched, if there is a trend, towards the higher counts. In any case, it will be necessary to watch closely the working of the piece-rate as a whole and review it further after a period of 12 to 18 months.

(para 62).

19. *While the Ambar charkha marks the culmination of a search for and effort towards designing a suitable unit, at the same time it is only at the beginning of its evolution as a model.*

(para 13).

20. *There is much room for further improvement in the Ambar charkha, to increase the quantity and improve the quality of yarn produced.*

(para 13).

21. *The Ambar charkha undoubtedly seems to have immense possibilities, in enabling the decentralisation of an industry producing a commodity essential next only to food; and in providing greater*

gainful employment particularly in villages. There is justification for a balanced optimism, but also need for cautious advance and most careful organisation both in the field and at headquarters. (para 13).

22. There is also need to continue and carry out further field experiments on an intensive and extensive scale, in arriving at ultimate conclusions. (para 13).

23. Training in the use, handling and maintenance of the Ambar charkha set, combined with practice, is essential for a minimum of three months, for attaining adequate competence for production. Thereafter, steady practice significantly improves quality and productivity. (para 89).

24. The Committee has not looked for any other kinds of hand-spinning units but a few types shown by the inventors have been seen. Of those seen, the Ambar charkha seems the best. (para 13—Introductory).

RECOMMENDATIONS

1. The experimental steps of the scheme should continue for some time longer; experiments should be on an increasing scale, in keeping with our other recommendations. (para 13).

2. Both intensive and extensive efforts should be made for improvements in the design of the Ambar charkha, both in the spinning unit and in the *Belni*. A design competition for the spinning unit, to conform *inter alia* with Gandhiji's specifications should be organised by Government. (para 13).

3. Much more experiment and testing should be done on productivity of yarn on the Ambar charkha, to see if it can be more than 6 hanks a day, after 3 months of training and practice. (para 13).

4. Charkhas should be adequately tested for quality and performance, before being used for production. (para 14).

5. Government should immediately set up a Textile Research Centre adequately equipped and staffed, mainly devoted to decentralised spinning and weaving; with regional centres to be set-up in due course. (para 24).

6. There should be an annual review of the progress and further prospect of the scheme, with special attention to technical improvements, quality of the product, productivity, worker's earnings, subsidy element and the extent of its further needs, prices, organisation and disposal of yarn. (para 24).

7. Generally speaking, yarn produced with the Ambar charkha should be upto 24 counts, since this charkha is best suited for the manufacture of yarn up-to this count. (para 25).

8. Growing of cotton staples suitable for the Ambar charkha, $\frac{3}{4}$ " to $\frac{7}{8}$ ", should be encouraged in all villages as part of a drive for self-sufficiency in the C.P.A. and agricultural programmes. (para 44).

9. Experiments should be conducted to reduce wastage in spinning to the minimum and possibilities of re-using or otherwise utilising the wastage should be explored. (para 51).

10. Any Ambar project, comprising both spinning and weaving should be so designed, organised and implemented, as to be related directly to the development and transformation of the village economy. (para 52).

11. The Ambar project should be incorporated with the progressive realisation of regional self-sufficiency and provide for the increase in consumption of Ambar cloth in local areas. This will greatly contribute to the realisation of the objective of doing away with the subsidy in the production of Ambar cloth. If an area or region undertakes any internal consumption, it should be given preference. (para 53).

12. The Ambar charkha should be manufactured on a fully decentralised basis, village carpenters from the Ambar areas should be trained and supplied only with the essential precision parts from a central agency; it should not be manufactured in any central factories or even in a number of manufacturing centres. (para 56).

13. The distribution of Ambar charkha sets should be subsidised to some extent. In the first instance, the Ambar charkha set should be charged at full cost to the spinner to whom it is supplied, the cost being payable in easy instalments over five years, free of interest. It should be open to the appropriate agency authorised by Government, when approximately half the cost has been recovered, to decide in the case of particular persons or class of persons as to whether any part of the remaining half of the cost should be treated as subsidy. One of the main criteria in deciding upon the subsidy should be the use made of the charkha. In order to be eligible for the subsidy, the user of the Ambar charkha must be able to demonstrate that the Ambar charkha has been gainfully used to approximately 75 per cent. of the rated capacity. (para 58).

14. Working capital should be provided, free of interest, for the manufacture and supply of Ambar charkhas, at the rate approximately of 50 per cent. of the cost of the charkha sets to be made and supplied in any one year; that is, an amount equal to six months' production. (para 59).

15. The daily wages earned at spinning should be kept under constant watch and studied by Government. A flat piece rate of 1½ annas a hank for all counts, for the present, would be reasonable, based on spinning counts, from 16's to 32's. (para 62).

16. The cost of training, depreciation and maintenance element in the cost of the Ambar charkha set itself, and the indirect subsidy given by Government by way of loans free of interest, should not be included in the built-up cost of Ambar yarn. (para 63).

17. The concept of "certification" by the Khadi Board should gradually give place to the concept of a normally decentralised village industry. Ambar cloth should ultimately take a natural and not a special place amongst the various kinds of cloth to be bought and sold. There should be ultimately no "certification" of looms by the Khadi Board, to keep Ambar cloth "pure". (para 65).

18. The scheme should be so organised as to ensure that yarn produced does not accumulate for want of weaving. (para 66).

19. Special effort should be directed at every point, towards a target, in the first instance, of bringing down the need for subsidy to a total of two annas in the rupee for Ambar cloth. (para 70).

20. Working capital should be provided, free of interest, at 60 per cent. of the annual production of Ambar cloth; i.e. Rs. 500 per Ambar charkha set, with a six monthly assessment of the requirements. The assessment should be made at least 3 clear months before the period for which the requirements are assessed. (paras 72 & 73).

21. The organizational aspects of the Ambar charkha and its use need a great deal of examination and consideration. (para 87).

22. The Ambar programme should be integrated with the Community Project Areas and National Extension Service and run by the C.P.A. wherever a C.P.A. or N.E.S. project is sufficiently established. (para 87).

23. Special attention should be given to training of both spinners and instructors. Training should be regular, systematic and sufficient. Six weeks of training followed by six weeks of practice is considered the minimum. The training scheme should keep pace with the plan for production. (para 89).

24. At the end of the 3 months' training, every spinner should have an Ambar charkha set in his home for immediate use, without break. (para 89).

25. Training should culminate in a test and certificate of proficiency. (para 89).

26. The full cost of training should be met by Government. (para 90).

27. The existing Khadi looms should all go over to Ambar yarn, as part of the first phase of the programme and the traditional charkha should be progressively replaced by the Ambar charkha. (para 92).

28. Any Ambar project, comprising both spinning and weaving should be so designed, organised and implemented that, as far as possible, existing handlooms are brought into the scheme to weave Ambar yarn, instead of new handlooms being set up specially for the Ambar yarn. (paras 92 & 97).

29. Next should be the looms now using mill yarn, in the neighbourhood of existing spinners of khadi yarn. (para 93).

30. For the year 1956-57, the scale should be about 75,000 Ambar charkhas in all; and the result should be further examined and a decision taken by Government by the end of December, 1956, as to

the scale of the scheme for 1957-58 and the probable scale for 1958-59; the figure for 1957-58 may be anything up-to about 2 lakhs of new Ambar charkhas. (paras 94 & 95).

31. The programme should be implemented, as far as possible, in areas where cotton is locally available and where handloom weaving is intensively practised; and where there is greater need for providing employment. (para 96).

32. Subject to organisational problems being solved in a practical manner, members of weavers' families should be trained and supplied with Ambar charkhas in preference to others; at least 75 per cent. of the spinners (other than the present spinners of traditional khadi yarn) should be from weavers' families, until nearly all such families have been provided with at least one, preferably two, Ambar charkha sets. (para 97).

33. Subject to organisational problems being solved in a practical manner, Ambar yarn produced for weaving should, except only for the training to be imparted, be spun only in the spinners' homes and not at spinning centres. (para 98).

34. The scheme should be progressively decentralized. The Central agency (Government or the Khadi and Village Industries Board) should limit its functions to:—

- (a) allotment of grants, subsidies, loans;
- (b) advice and directions on technical and organisational matters;
- (c) research and testing;
- (d) a Directorate to watch and assess the progress for two years;
- (e) co-ordination between the decentralised agencies;
- (f) export;
- (g) certification to the extent necessary. (paras 99 & 100).

35. Government should set up a special section or a Directorate strongly staffed by persons qualified and experienced in the technical aspects, economics, statistics and administration of large scale organisation of village industries, including Community Project and co-operatives, to continuously and closely watch the progress of the scheme for the first two years. (para 100).

36. The Ambar programme should be organised through co-operatives. (para 101).

37. The market in Ambar cloth should be carefully watched and tested under Government supervision, in regard to the price at which Ambar cloth can find a ready market. (para 102).

38. The objective should be stated and established, of attaining the point where a subsidy will no longer be necessary for decentralised spinning and weaving. (para 102).

39. Government should, to the maximum extent possible, obtain its requirements of cloth from Ambar cloth; Government requirements should be linked to the production project directly through the 6 M. of Production.

headquarters procurement organisation on the one hand and headquarters production organisation on the other. (para 103).

40. Apart from emporia in the larger capitals of the country, there should be a net-work of sales depots in districts and rural areas. (para 104).

41. Sample rooms may be opened under the marketing organisation in important cities and samples of items along with information about rates and ready stocks at different production centres may be kept in the sample rooms in order to secure orders and do wholesale business. (para 104).

42. Finishing and stocking centres for Ambar cloth will be needed as production increases. These centres should be planned now; and the possibility of degrees of specialisation examined. (para 105).

43. There should be adequate arrangements for quality control of yarn spun in bulk. (para 105).



II. TECHNOLOGICAL ASPECTS

Analysis of data including replies received to Committee's questionnaire and Committee's conclusions thereon

Laboratory tests.

Very soon, after the All India Khadi & Village Industries Board first approached Government with its proposal to manufacture yarn on a large scale with the Ambar charkha, Government directed the Textile Commissioner to have tests conducted on the charkha and the yarn produced by it at two textile research laboratories. These were the Ahmedabad Textile Industries Research Association, Ahmedabad and the Technological Laboratory under the Central Cotton Committee in Matunga. Both these laboratories actually started work sometime in August, 1955 and their interim reports were received by Government early in March, 1956. About that time, Government appointed this Committee. At its very first meeting a decision was taken that in addition to the laboratories at Ahmedabad and Matunga similar tests should be conducted at four other textile laboratories. These were Kala Bhavan, Baroda, the Bengal Textile Institute, Serampore, the Krishna Rajendra Silver Jubilee Technological Institute, Bangalore and the Government Central Textile Institute, Kanpur. On the 14th of March, 1956, the All India Khadi & Village Industries Board was requested to supply to these laboratories the latest model of the Ambar charkha as well as trained personnel for operating the charkhas. It might be mentioned that an improved model of the Ambar charkha was prepared by A.T.I.R.A. during the course of their experiments and was duly approved by the Board. The institutes agreed to conduct the tests and furnish the results to Government within two to three weeks of the receipt the Ambar charkha set, along with the trained personnel to operate them. It was hoped that reports from these institutes would be received well in time for the Committee to make use of the data, in reaching conclusions in their meetings held from the 21st to 29th May, 1956. Unfortunately, however, the Board were unable to supply either the charkhas or the trained hands well in advance to enable them to send their reports by the 21st May, 1956. Since the previous tests conducted by the Matunga laboratory were on the standard model, the committee decided that it should also be requested to carry out a fresh series of tests with the improved model. But on account of the difficulties in supplying improved charkhas, cotton of a specified variety and trained personnel, the Matunga laboratory and the other institutes except the Textile Institute, Kanpur, were unable to furnish their reports in time. The Kanpur Institute, by special arrangement, conducted the tests with raw cotton locally available instead of the cotton of the specified type which was to be supplied by the Textile Commissioner. In order to furnish the report in time, they confined the tests to a period of 4 days.

Scope and pattern

2. At A.T.I.R.A. and Matunga the design of the tests was drawn up in joint consultation between the laboratories concerned, the Ambar Charkha Samiti of the Sarva Seva Sangh and a representative of the Textile Commissioner. In both places the tests were conducted under conditions as close as possible to those prevailing in the village. Neither the temperature nor the humidity was controlled. In fact, in A.T.I.R.A., a separate hut outside the main air-conditioned building of the Association was constructed for carrying out of the test, so that the findings might be as reliable and realistic as possible. The laboratories were requested to draw up a comprehensive scheme including the following points for testing:—

- (i) mechanical condition of the charkha;
- (ii) whether the charkha had suitable arrangements for producing cotton of different staple lengths and for varying counts, twist, etc.
- (iii) production per spindle during an 8 hour day;
- (iv) count of yarn;
- (v) evenness, cleanliness of the yarn; as also the irregularity of twist and the countlea strength product;
- (vi) percentage of waste;
- (vii) number of men required on the various processes and the output that is possible thereby;
- (viii) statistical analysis of the data and comparison with data for mill yarn;
- (ix) quality of cloth woven on handloom with Ambar yarn and difficulties if any, experienced during the weaving process; and
- (x) comparison of cloth produced from Ambar yarn with that produced on handloom with mill yarn.

3. In A.T.I.R.A., the experiments were conducted on five spinning sets and one handloom while in Matunga only one spinning set operated by one worker was used. The Matunga laboratory was not able to perform any weaving tests or cloth tests, because the only worker available with them left the laboratory in January, 1956 and the Board was not able to provide a substitute. The Matunga laboratory has reported that in the absence of a worker from the Board or the Ambar Samiti, further work, namely:—

- (i) production of sufficient quantity of yarn for weaving;
- (ii) study of the weavability of yarn;
- (iii) determination of the fabric quality; could not be undertaken.

The Laboratory, however, sent a special report on a few samples of Ambar yarn supplied to it by the Secretariat of the Committee from among the samples collected by it during its visits to the Parishramalyas.

Field tests

4. In appreciation of the fact that the findings of laboratory tests are, by their nature restricted in the sense that they cannot be taken as of general applicability, Government, in consultation with the All India Khadi & Village Industries Board, set in motion a pilot project, whereunder work on the Ambar charkha could be done on a more extensive scale and under more or less field conditions. The scheme was sanctioned late in November, 1955 and the Khadi Board was, at its own request, permitted to have the pilot scheme worked through the agency of the Sarva Seva Sangh.

Scope and pattern

5. Apart from six functional offices for training, administration, inspection, etc. the Board's pilot scheme envisaged:

- (a) provision of an intensive six weeks' training course to 400 selected instructors in 15 *vidyalayas*;
- (b) the establishment of 100 *parishramalyas*, all over the country, to provide intensive training and practice for a minimum period of six weeks each in the use of Ambar charkha and its accessories.

The object was to verify whether with six weeks' training and six weeks' practice, an average spinner could produce on the Ambar charkha, in an 8-hour day, eight hanks of yarn from carding to spinning, or sixteen hanks of yarn if only spinning was done. The second object was to determine the acceptability of the yarn to handloom weavers. This investigation was to be done by distributing Ambar yarn to handloom weavers and recording their reactions.

6. As against a target of 15 *vidyalayas* and 400 instructors, 14 *vidyalayas* were actually opened and 354 workers trained.

7. As regards *parishramalyas*, according to the Khadi Board's plan, each was to be supplied with 60 Ambar charkha sets and each was to train 120 spinners. Actually as against 100 *Parishramalyas* sanctioned, the Board, with the same amount of money, opened 121 *parishramalyas* by reducing the size in a few cases. Even for the original 100 *parishramalyas*, at the rate of 120 spinners per *parishramalya*, their total capacity should have been 12,000 trainees. As against this, however, 4,886 trainees in all were admitted, of whom only 3,640 continued to the end. This would imply that about a little less than two-thirds of the capacity of the *parishramalyas* remained unutilised and only a little over one-fourth of the capacity was fully utilised. Due to the poor response in the beginning, even the majority of trainees who were ultimately admitted could not complete the full course of prescribed training and practice of 90 days. This fact, the Board states in its report, has affected the results in regard to the productivity. Due to various reasons, the full contingent of Ambar Charkha sets i.e., 60 per *parishramalya* could not be supplied.

8. In regard to the class of persons who responded to the Board's call, it has been stated in the Board's report that the majority were new spinners and the number drawn from weavers' families was insignificant. One more fact emerged according to

statistics presented by the Board. From among 3,640 trainees who were present during the last fortnight, 1,911 or 52·5% were men, probably due to the fact that the Ambar charkha held out the promise of a less inadequate wage than was possible in the case of the traditional charkha. Incidentally, the majority of spinners engaged on the traditional charkha are women.

From out of the 121 *parishramalyas* that were established, only 105 have submitted reports and even out of these, 21 reports had to be rejected due to their being either incomplete or incorrect. In effect, therefore, the results are based on the work only of 84 *parishramalyas*. In all the *vidyalayas* and *parishramalyas* under the Board's pilot project, the standard model of the Ambar charkha was used.

Miscellaneous tests

9. In addition to the laboratory and field tests described above, the Committee during its visits to the various *parishramalyas* collected, wherever possible, samples of yarn and cloth and arranged for these samples to be tested through the Directors of Industries, in P.E.P.S.U., Andhra and U.P.

Some yarn in bulk was also supplied to Shri Vasavada and Shri A. S. E. Iyer, members of this Committee and also members of the Handloom Board, for having the weavability of Ambar yarn tested, by getting it woven by professional weavers. Owing to the delay in the supply of yarn only Shri Vasavada's report was available to the Committee at the time it examined the data and formulated its conclusions and recommendations. Another consignment of yarn was sent to the Joint Director of Industries U.P. for testing the weavability of Ambar yarn. This report was available to the Committee in time.

Data available

10. In effect, therefore, the following material was available to the Committee, at the time it set down its conclusions:—

- (a) reports from the Ahmedabad Textile Industries Research Association Ahmedabad, on tests conducted on the improved model of the Ambar charkha (Appendix VI.);
- (b) reports from the technological laboratory of the Central Cotton Committee at Matunga, on tests conducted on the standard model of the Ambar charkha (Appendix VI and Appendix IX.);
- (c) a special report from the Textile Institute, Kanpur on tests conducted on the standard model of the Ambar charkha (Appendix VI.);
- (d) a special report from the Joint Director of Industries, U.P., on the work done in the Board's *parishramalaya* at Meerut (Appendix XI.);
- (e) report from the Joint Director of Industries, U.P., on the weavability of cloth with Ambar yarn (Appendix IX.);
- (f) report from the Director of Industries, P.E.P.S.U., on Ambar yarn (Appendix IX.);

- (g) report from the Director of Industries, Andhra, on tests on Ambar yarn, conducted by the Textile Institute, Madras (Appendix IX.);
- (h) report received from Shri Vasavada on the weavability of Ambar yarn supplied to handloom weavers in Gujarat (Appendix IX.);
- (i) report from the All India Khadi & Village Industries Board on the field tests conducted in 84 *parishramalyas* (Appendix VII.);
- (j) replies to Committee's questionnaire on technical aspects of Ambar charkha from A.T.I.R.A., Technological Laboratory, Matunga and the Textile Institute, Kanpur (Appendix IV.).

The Ambar Charkha set

11. The Technological Laboratory, Matunga, where tests were conducted on the standard model of the Ambar charkha have reported that some of its components require modification. According to them, the *dhunai modia* or carding unit ruptures the fibre and should either be modified or discarded. They consider the Ambar *belni* a useful device but they fear that it is the *belni*, in its present form, which is mainly responsible for the irregularity and unevenness of yarn. The spring and string-weighting on the 2 pairs of the rollers cause slippage and stickiness of the sliver. The ring-frame too, in their view is lacking smooth movement.

12. Fortunately, during the course of their tests and experiments with the standard Ambar charkha, the A.T.I.R.A. Laboratory found a remedy for some of its short-comings by modifying the defective parts. Details of all the modifications made are given in Appendix VI. Subsequent to the designing of the improved model, A.T.I.R.A. have reported that they did not have much difficulty in spinning yarn in the count range of 12's and 20's. In regard to the *dhunai modia*, they have recorded an opinion to the effect that in its improved form it does not cause any significant damage to cottons of short-staple lengths. The carding of long staple cottons like *Rajapalayam* is still unsatisfactory and A.T.I.R.A. are attempting further modifications to minimise the shortcomings.

13. The Committee considers that while the Ambar charkha marks the culmination of a search for and effort towards designing a suitable unit for decentralised production of yarn, it is only at the beginning of its evolution as a model. There is much scope for further improvement in the Ambar charkha to make it an efficient instrument of production. Experiments must, therefore, be continued. The need for cautious advance is apparent. While the Ambar charkha undoubtedly seems to have immense possibilities in enabling the decentralisation of an industry producing a commodity essential next only to food; and in providing greater gainful employment particularly in villages, there is justification for a balanced optimism but also need for cautious advance and most careful organisation both in the field and at headquarters. There is also need to carry out further field experiments on an intensive and

extensive scale in arriving at ultimate conclusions. Both intensive and extensive efforts should be made for improvements in the design of the Ambar charkha, both in the spinning unit and in the *belni*. A design competition for the spinning unit to conform *inter alia* with Gandhiji's specifications (described in Appendix I) should be organised by Government. Much more experiment and testing should be done on productivity of yarn on the Ambar charkha, to see if it can be more than 6 hanks a day after 3 months' training and practice. Experiments should be conducted to reduce the wastage in spinning to the minimum and possibilities of re-using or otherwise utilising the wastage should be explored.

14. The general remarks offered by A.T.I.R.A. on the question of yarn quality are pertinent in this context. They have prescribed three conditions, which in their opinion must be fulfilled before yarn spun on the Ambar charkha can be satisfactory. These are:—

- (a) various parts in all the three units of the set should strictly conform to the specified sizes laid down for each of them;
- (b) all the settings and other details should be carefully checked, before and in the course of working, by means of standard gauges; and
- (c) processing instructions should be followed carefully.

Experience with experiments at A.T.I.R.A. showed that whenever one or more of the above conditions were not observed, the yarn quality deteriorated, particularly in point of variation, in count strength and uniformity. It is, therefore, absolutely necessary for the efficient operation of the Ambar charkha and for production of good quality yarn that each Ambar charkha set is properly tested before it is supplied to the spinner.

15. On the question of precision parts, both of wood and of iron, the three laboratories, at Ahmedabad, Matunga and Kanpur have advised that these should not be left to the village artisan but should be manufactured according to standard specifications by skilled technicians in mechanised workshops. While there can be no doubt that the manufacture of essential precision parts should be centralised, this Committee is emphatically of the view that the Ambar charkha unit itself, excluding its precision parts, should be manufactured on a fully decentralised basis. The Committee would go to the extent of saying that even at the cost of some delay in the implementation of the programme as a whole, decentralisation of the manufacture of the Ambar charkha should be encouraged and fostered to the greatest extent possible. Village carpenters and black smiths from the Ambar areas should be properly trained. In fact, it will be a good idea to depute one or two trained technicians to a group of villages for giving adequate guidance to the local carpenters and black-smiths. These artisans will not only be able to produce the required number of Ambar charkhas but will also be in a position to help in the manufacture and repair of other types of equipment needed for village industries. They would also be of help in the manufacture and repair of agricultural implements needed by the peasants. This will, in a manner, become a nucleus

for imparting technical education to the villager and will help in the diffusion of technique and in re-orientating his mind towards technical and mechanical skills. The development of this aptitude will also stand the peasants in very good stead when, with the expansion of rural electrification, mechanical and technical skills will be in great demand. In connection with the training of village carpenters and black-smiths for the decentralised manufacture of Ambar charkhas, it would also be useful to have one or two workshops for a group of villages which could act as servicing units. These workshops should be fitted with the requisite tools and equipment and perhaps trained technicians could be attached to them.

16. This leads on to another question which was included in the questionnaire issued on the technical aspects of the Ambar charkha. The laboratories that had conducted tests on the Ambar charkha were asked to give their views about the possibility of adjusting the Ambar charkha for being worked with electricity. While the Matunga Laboratory has answered in the affirmative, A.T.I.R.A. and the Textile Institute, Kanpur, have stated that experiments will have to be designed to test this point and substantial modifications might become necessary.

17. A question was raised about the fatigue factor. One of the terms of reference of the Committee runs as follows:—

“Whether a normal adult can work the Ambar charkha set for 8 hours, with reasonable intervals of rest, say 15 minutes after every 2 hours and a recess of one or two hours after four hours, without any particular feeling of fatigue”?

Experiments carried out at A.T.I.R.A. and Matunga do not throw much light on this aspect of the problem. The Textile Institute, Kanpur, in dealing with this question have stated that conditions of work in cottage industries are very different from the regimented conditions of work obtaining in factories. When spinning is done in the cottages, workers can take rest according to their convenience and work during hours when the strain is comparatively less.

The majority view (six members) on the question is a categorical “yes”, with the comment that the conditions in which the Ambar charkha will be worked specially in village homes are entirely different from the regular and comparatively regimented work periods in mills. Of the minority, one member answers with a categorical “no” on the data available; while two consider that the fatigue element should be tested comparatively with ordinary industrial working conditions and that for this there is not enough data on which to judge.

Quantitative production of yarn

18. According to information furnished by the Matunga Laboratory where experiments were conducted on the standard model, the out-put of 20's, when work is restricted to spinning only, comes to 16.4 hanks in an 8-hour day. If account is taken of preparatory processes exclusive of the time taken for repairs and adjustments.

for counts etc., the output falls to 5.2 hanks per day. If the time taken for reeling is reckoned with, the output is only 4.4 hanks; and if the total time taken for all preparatory processes, as also time for repairs and adjustments is taken into account, the output is further reduced to only 4 hanks per 8-hour day.

19. A.T.I.R.A.'s findings on this point, as given in the final report, are much more encouraging. On the improved latest model of the Ambar charkha, the average production of yarn of 20 counts in an 8-hour day ranged between 12.4 and 34.9 hanks, when only spinning was done. If all three processes, viz., carding, slivering and spinning are taken into account the average output of yarn of 20 counts ranged between 4.0 and 8.9 hanks. Taking the production of all the 5 spinning units as a whole, the average quantity, for spinning only, worked out to 18.4 hanks and output for all the three processes, taken together worked out to 5.6 hanks.

20. According to the special test conducted by the Textile Institute, Kanpur, the findings on the question of quantitative production indicate that a person devoting his full time to spinning only can produce 6.25 hanks to 8.2 hanks in 4 hours. This figure is confirmed by their reply to the questionnaire. Before finalising their replies to the questionnaire, the Textile Institute, Kanpur had experimented with the Ambar charkha for a period of three weeks.

21. According to the field tests conducted by the All India Khadi and Village Industries Board, the all India average productivity per spinner for an 8-hour day comes to 5.12 hanks. This has been calculated by dividing the total production by the total number of hours and then multiplying the result by 8. The total production is that of the entire period for which the pilot project was run. In consultation with the Khadi Board, it was agreed that it would be desirable to calculate the productivity on the work of the last fortnight only, in the belief that in the last fortnight the spinners would have completed their full three months' training and practice. But because of late admission and falling-off of trainees during the course and the fact that trainees were admitted right till the end, the last fortnight's figures ceased to have any significance. The Committee's secretariat did collect such statistics. The total production during the last fortnight was 2,38,431 hanks and the total number of spinning hours was 3,58,125. The output per hour worked out to 0.66 hanks or 5.28 hanks per 8-hour day.

22. The above data was considered by the Committee. In the case of experiments conducted by Matunga, it was observed that the tests had been carried out with the help of a single worker. Even in A.T.I.R.A., the tests were confined to 5 charkhas operated by 5 workers.

In the case of the findings of the pilot project under the Board, the Committee noted that the very great majority of spinners had not completed the full 6 weeks' training followed by 6 weeks' practice. It was obvious, therefore, that the productivity figure as worked out by the Board was not a correct assessment. If the full 3 months' training and practice had been afforded to the spinners the productivity figure would have been higher. Correlation between

training and output is apparent from some statistics furnished in the Board's report on the working of the pilot project. Those who barely completed training and had no practice showed an average output of 4 hanks per day. Those who had full training and about 4 weeks of practice showed an output of 5.2 hanks per day. Those who had the full training of 6 weeks and over 4 weeks' practice gave an output of 6 hanks per 8-hour day on an average and the productivity of some of them was much above the 6 hank figure. As for the laboratory tests, since they were restricted and covered only the performance of a very small number of spinners, over the short period of about 10 or 12 days, it cannot be safely assumed that their results would be strictly applicable to the general situation. Differing conditions, the human factor and an element of motivation supplied by the wage-earning factor would necessarily influence the output over a larger field. Moreover, both in the field and in tests carried out at Kanpur and Matunga, the standard and not the improved model of the Ambar charkha were used. This fact inevitably depressed the productivity. Taking the above factors into consideration, the majority view is that the Ambar charkha can give a production of 6 hanks, on an average, from cotton to reeling. Of the majority (six), one considers that the daily output would be between 6 hanks and 8 hanks. All the six consider that the figure of 6 hanks could probably be improved upon, by more practice and further experimenting. Some of the members (three) feel that on the basis of data, so far obtained, the figure of 6 acceptable to the majority does not give a correct assessment. In the first place, according to these members, the calculations of the Board were only approximate. Further the calculations did not take into account the time taken for reeling and were based on a one-hour unit. They think that experiments should be carried out for a number of days with the spinners working for 8 hours daily. The one-hour unit as adopted by the Board tends, in their view to inflate the final figure. According to one of the minority of three, though the experiments and data are inadequate yet on the basis of whatever material is available, the production may be taken as between 4 and 5 hanks. One considers that the productivity figure should be 5 and the other between 5 and 6, with possibilities and room for improvement.

23. The Committee is unanimous that productivity for spinning only would be about double that of cotton to reeling.

24. On the whole, the entire Committee considers that much more experimenting and testing should be done on the productivity of yarn on the Ambar charkha to see if it can be more than 6 hanks a day after 3 months of training and practice. There should be an annual review, with special attention to technical improvements, quality of the product and productivity. The Committee is of the view that there is need to continue and carry out further field experiments on an intensive and extensive scale for arriving at ultimate conclusions. In order to help in making a proper assessment, it is recommended that Government, should immediately set up a Textile Research Centre, adequately equipped and staffed, devoted mainly to the decentralised textile industry. Regional centres should be set up in due course.

Count range in Ambar yarn

25. The question which has been put to the Committee is whether the tools or machines are capable of producing yarn of coarse, medium and fine counts, the range being 6 to 18, 18 to 32 and 32 to 48. While there have been a few cases of spinners producing yarn of very fine counts, even up to 80's, on the Ambar charkha, production of yarn of fine counts is not very well suited to the mechanics of the Ambar charkha in its present form. An interesting fact which was brought to the notice of the Committee by the Secretary of the Ambar Samiti was that if the spinners were given their choice they always preferred the higher counts of 24's, 32's and 40's. By and large, however, the Ambar charkha is best suited for the low and medium counts up to 24's. But as a machine, it is certainly capable of producing cotton yarn up to 48's and even higher counts. To determine whether finer counts can be spun on a mass scale, there is no data available. Bulk production so far has been up to 24's. If high grade cotton is supplied to the spinner, the production of yarn up to 48 counts would not present any serious difficulties.

Quality of yarn and its weavability

26. According to the tests carried out by Matunga, Ambar yarn is fairly clean but a little over-twisted. They have qualified their finding in regard to cleanliness with the remark that cotton used for spinning was clean lint and not the ordinary commercial baled cotton. As against the maximum count variation of 10%, normally accepted, the count variation in Ambar yarn was generally found to be within 6%. For testing lea strength 7 types of cotton were used by Matunga for spinning yarn of 20s. H 420 gave a minimum lea strength of 41.4 lbs., while Vijay gave a maximum lea strength of 79.1 lbs. The Matunga authorities have also stated that the yarn is capable of passing through the reeds during weaving.

27. According to A.T.I.R.A., Ambar yarn is fairly clean and smooth. In appearance it is comparable with mill yarn normally available in the market to professional handloom weavers, samples of which were supplied by the Textile Commissioner for comparison. Count variation for yarn of 20's spun out of Vijay cotton was 7%. Lea strength for yarn of 20's was 84.6 lbs. A.T.I.R.A.'s findings indicate that Ambar yarn is capable of passing through the reeds during weaving without many breakages. End-breaks in spinning per hour on 4 spindles range between 0.64 and 2.24. As for irregularity percentage, it was 14.6 at low speed and 16.4 at high speed. The irregularity percentages for mill yarn supplied by the Textile Commissioner ranged between 13.3 and 18.7 at low speed and between 15.2 and 21.2 at high speed. Winding breaks per hour in the case of Ambar yarn averaged 96.3 and for mill yarn normally supplied to handloom weavers it ranged between 102.4 and 156.7. On the question of turns per inch, while it was 19.3 for Ambar yarn, it ranged between 18.3 and 22.1 for mill yarn usually supplied to handloom weavers. A.T.I.R.A. have reported that on the score of co-efficient of variation in lea strength, samples of mill yarn supplied by the Textile Commissioner were on the whole inferior to Ambar yarn. A.T.I.R.A. have, however, simultaneously pointed out that composite

mills dispose of their low quality yarn for handloom weaving. They conclude that adequately trained spinners can produce on the improved Ambar charkha yarn of 20 counts from pure Vijay cotton, of a quality comparable with the 19's to 20's produced by the composite mills out of cotton mixings which are generally inferior in quality.

28. The Textile Institute, Kanpur, have stated that sufficient tests have not been performed by them to give any definite opinion on the question of appearance of yarn, count variation and tensile strength. But the yarn is capable of passing through the reeds during weaving, although due to variation in counts there are many breakages. According to the Kanpur institute, the lea strength of Ambar yarn of 18 counts is 60 lbs. and according to the Textile Institute, Madras, the lea strength of Ambar yarn samples tested by them ranged between 39.6 and 40.16 lbs.

29. As regards weavability of Ambar yarn, the Matunga Laboratory was unable to conduct any tests. A.T.I.R.A.'s findings are given in Tables I and II appended to this chapter. It will be observed that the rate of weaving per hour in the case of Ambar yarn was higher than in the case of mill yarn and the breaks per loom hour in the case of mill yarn were more than in the case of Ambar yarn. A.T.I.R.A. have, however, cautioned that no significance can be attached to this, on account of insufficient number of tests on one loom only.

30. The Director of Industries, PEPSU, arranged for two experiments to be conducted. In one case, all the preparatory processes were done according to traditional methods but the actual weaving was done on a fly-shuttle loom. In the second experiment, all the processes adopted were those normally followed by the fly-shuttle handloom weaver. While the first experiment stood the strain and it was possible to weave cloth of normal quality, in the second experiment, breakage of warp threads was extensive. The statistics relating to these two tests are appended in Table III. In the first experiment with Ambar yarn, 10 yards of cloth of satisfactory quality were woven in 8 hours, whereas in the second experiment, 2½ yards of unsatisfactory quality were woven during the same period. The output with mill yarn of the same count was 14 yds. in the same unit of time i.e. 8 hours.

31. The weaving tests conducted under the supervision of Shri Vasavada were on about 50 lbs. of yarn supplied by the Board from their *Parishramalaya* at Nadiad. Two handloom weavers who were used to work with mill yarn did the weaving on fly-shuttle looms. The results of these tests are given in Table IV appended at the end of this chapter. The average production per hour in the two experiments was 1 yard and 1½ yards, and the end breakages were 40 and 28. Both experiments were conducted with Ambar yarn and no comparison was attempted with mill yarn of equivalent counts.

32. About 25 lbs. of yarn were supplied to the Joint Director of Industries, U.P., for conducting similar tests. His report is as follows:—

- (a) high twist of yarn and unevenness cause difficulties in winding, warping sizing and weaving and there were many breakages;

(b) out-put of cloth was less than in the case of mill yarn;

(c) Ambar yarn is more adaptable to warp sizing rather than hank sizing.

33. The Joint Director of Industries, U.P., has added that the difficulties were greater on account of the hot summer weather when the tests were conducted. His anticipation is that the yarn would weave better during the rainy season. He has also reported that two of the weavers who had no experience whatsoever of handspun yarn and warp sizing found the weaving even more difficult.

34. The All India Khadi and Village Industries Board has also submitted a report on weavability. The Board distributed Ambar yarn to almost all important regions in the country. At the time of reporting, however, information had not been received from 9 regions. The Board's data covers 50 weavers from Nadiad, Karnatak, Maharashtra, Gujrat, Tamilnad, Bihar and Saurashtra. Of the reports on these 50 weavers, 9 were rejected for various reasons. In effect, therefore, the findings of the Board are based on the work of 41 weavers. Of these 41 weavers, only 17 were persons who had previous experience of weaving with mill yarn. The majority of weavers used the fly-shuttle loom. The Board has given statistics only in regard to the count of yarn used (12's to 24's), the texture and the productivity. On important items like number of hanks used for warping and yarn breaks during winding prior to warping, breaks while warping, breaks while sizing and breaks per loom-hour, the Board's report is silent.

35. The Committee feels that the All India Khadi & Village Industries Board has not paid to the weaving aspect of the experiment, the attention it deserves. It is also unfortunate that only 17 out of the 41 weavers who were engaged in the weaving tests were professional hand-loom weavers, accustomed to mill yarn. On the other hand, one of the main purpose of the pilot project was to assess the acceptability of Ambar yarn to professional hand-loom weavers.

Texture of Ambar cloth

36. In Ambar cloth, the ends ranged from 24 to 48 per inch, though in most cases the minimum did not fall below 40. Picks per inch ranged from 24 to 58 but for the majority of weavers (31), the minimum was 42 picks per inch. In cloth woven from mill yarn, ends per inch ranged between 20 and 48 but for the majority of weavers, the minimum did not fall below 44 ends per inch. Picks per inch ranged from 20 to 50 but for the majority of weavers, the minimum was 42 and more per inch.

51. Figures regarding productivity in weaving as it emerged from the Board's report are given in Table V at the end of the chapter. The data establishes that productivity in weaving per unit of time in the case of Ambar yarn is less when compared to mill yarn.

38. On the question of productivity in weaving, the Committee is agreed that the number of yards of cloth that can be woven per hour with Ambar yarn is less than that from mill yarn. Some feel, however, that it would be risky to draw conclusions of major importance on the results of tests conducted on a few looms for a few days. The only fact that is obvious is the disparity of the output between mill yarn and the Ambar yarn, Ambar yarn output being less than that of mill yarn. Some are of the view that further experiment is very necessary, particularly since the findings in regard to productivity are based upon yarn produced by comparatively inexperienced trainees. On the whole, however, there is general agreement amongst the Committee that as compared with mill yarn, productivity of Ambar yarn in weaving is less and may vary from 5% to 25% less than in the case of mill yarn. One member has assessed the production of Ambar yarn at an average of 12 yards per day on a fly-shuttle loom but is unable to compare it with mill yarn. Another member feels that there is not enough data at all to come to any conclusion on the point. Another member considers that Ambar yarn so far used in weaving is limited by being produced by spinners with inadequate experience and perhaps inadequate training. The use of Ambar yarn on handlooms as compared to mill yarn has not been sufficiently tried out or established. This under-lines the fact that the stage is too early and a great deal more experimentation and experience is necessary before any definite conclusions can be reached. The experimental steps of the scheme should not only continue for some time longer; but this experiment should be on an increasing scale. This also emphasizes the need for immediately establishing a textile research centre devoted to the cause of decentralised spinning and weaving, of which mention has been made earlier. There should also be adequate arrangements for quality control of yarn, spun in bulk.

39. In arriving at conclusions, the Committee is very conscious of the fact that the yarn tested was the product of trainees and therefore, it is necessary to give a margin on this account. By the very nature of things, the Ambar scheme being in its infancy, it was not possible to obtain yarn produced by experts. The results of the tests, therefore, have to be viewed in this background and the fact kept well in mind that the pilot scheme of the Board was for training and testing and not a production project; that production was really incidental.

40. The majority (six) consider that the data assembled and experience gained would indicate that Ambar yarn is fairly even and strong for the purpose of weaving on handlooms; four of them consider that the data already available is reasonably adequate, while the other two add the rider, that further experiments should be carried on to confirm the position. Of the minority (three), one feels that the data and experience so far are inconclusive; while two consider that on the data available, Ambar yarn is neither even enough, nor of the right strength for use on handlooms. One member abstained from expressing any opinion.

41. One other question is relevant in the context of weavability. What kinds of cloth, of specified reeds and picks, could be woven on the handloom from Ambar charkha yarn and which from mill yarn?

The majority (six) consider that by and large, the same kinds of cloth of equivalent reeds and picks and within the yarn counts, already considered as suitable, can be woven from Ambar yarn as from mill yarn but two of them consider it necessary to make a reservation as to the quality of cloth as compared to that woven from mill yarn. Of two others who have expressed an opinion, both consider that whereas cloth of a sort can be woven from Ambar yarn on handlooms, no conclusions can be drawn as to quality. One of the two feels that heavy reed/picks cloth which can be woven from mill yarn cannot, in any case, be woven from Ambar yarn.

Availability of cotton for producing different counts of yarn and varieties of cotton most suitable for spinning different counts with the Ambar charkha set.

42. Making sufficient quantities of cotton available for the additional production of cloth, during the Second Plan period, is an overall problem which has to be tackled whether the additional yardage is manufactured by mills or in the decentralised sector. The estimated additional requirement of cloth, viz., about 1,500 million yards will require an additional 10-11 lakh bales of Indian cotton. It is true that for the production of coarser counts of yarn, the quantity of raw cotton that will be required will be a little more. But the difference is not significant. In 1955, the total production of cloth in the country came to about 6847 million yards consisting of 5,094 million yards from the organised mill sector, 273 million yards from the power-loom sector and 1,480 million yards from the hand-loom sector besides 30 million yards of khadi. For this quantity, the total consumption of cotton, both Indian and foreign comes to about 47 to 48 lakh bales. Out of this about 41 to 42 lakh bales is Indian cotton. The Committee took note of the fact that about 3 lakh bales of cotton below 11/16" staple length is exported and occasionally special licences are given for the export of staple lengths between 11/16" and 3/4". It also noted that the import of foreign cotton during the last few years has been progressively decreasing. The Committee noted also that the total 1953-54 crop was of the order of 40 lakh bales and in the current season the yield is expected to be between 42 to 44 lakh bales. During the period of the Second Plan, the production of raw cotton is expected to be raised by 14 to 15 lakh bales, bringing the total production to 55 lakh bales of cotton. The Committee is, therefore, of the view that subject to the import-export programme, the kinds of cotton cultivated and encouraged for growing and the achievement of the Second Plan targets for cotton production, as a whole, enough cotton will probably be available for all the additional requirement of cloth between 1956-57 and 1960-61. It follows, therefore, that sufficient cotton will be available for all the decentralised spinning that can be organised.

43. Earlier, it has been recommended that generally speaking, yarn produced with the Ambar charkha should be upto 24 counts, since this charkha is best suited for the manufacture of yarn upto this count. In the background of this, the Committee is unanimously of the view that all the commonly known varieties of cotton, of staple lengths between 3/4" to 7/8" are well suited for the Ambar charkha. The Committee's attention was drawn to the fact that the current tendency is to encourage the cultivation of longer staple

cotton. Some adjustments in the irrigation policy in regard to the staple length of cottons cultivated, appears necessary in order to ensure that cottons of staple lengths $\frac{3}{4}$ " to $\frac{7}{8}$ " which are well-suited for the Ambar Charkha are made available in the required quantities. As has already been stated earlier, the additional requirement of raw cotton, within this staple range will be of the order of 10 to 11 lakh bales.

44. It is recommended that the Ambar programme should be implemented, as far as possible, in areas where cotton is locally available. Growing of cotton of staples, suitable for the Ambar charkha, $\frac{3}{4}$ " to $\frac{7}{8}$ " should be encouraged in all villages as part of a drive for self-sufficiency in the Community Projects and agricultural programmes.

Wastage in Spinning and weaving

45. So far as waste in weaving is concerned, there is hardly any significant data. The only laboratory that experimented on this aspect is the Ahmedabad Textile Industries Research Association, Ahmedabad. Even their data is based on only two items of weaving. In one case, wastage for Ambar yarn was 0.75% and in mill yarn, it was 0.78%. In the second experiment, wastage for Ambar yarn was 0.59% and for mill yarn 0.80 per cent.

46. Neither has any adequate data been made available by the Board's pilot project. Even in the handloom industry such data has never been maintained. One member feels that in the handloom industry, since hand-processes are involved, the wastage is insignificant whether mill yarn or hand-spun yarn is used.

47. In the absence of data, it is not possible to draw any useful conclusions.

48. In spinning yarn with the Ambar charkha, according to rough and approximate calculations made by the Ambar Samiti, about $\frac{1}{3}$ of the total waste can be ploughed back for spinning yarn of very coarse counts for making ropes or sacking cloth. Of the laboratories that conducted experiments in wastage in spinning Ambar yarn, the Matunga findings indicate that the wastage varied from 6.2% to 26.8% depending upon the kind of cotton used. According to A.T.I.R.A. the average waste on the *dhunai modia* works out to 8.2% and on the *belni*, to 4.9%. A.T.I.R.A. are of the opinion that it is possible to reduce the wastage during processing with *belni*, as almost all the waste is avoidable if the worker is careful. They have also expressed the view that total spinning waste with Ambar yarn compares well with the average wastage in spinning mills because of the blow-room processes in the latter. On the basis of experiments conducted by the Textile Institute, Kanpur, the average waste in spinning works out to 12½%.

49. Mill wastage is estimated between 15 to 20%, of which a portion is marketable.

50. The Committee is generally agreed that for equivalent counts, using similar quality of cotton ~~whereas mill waste is~~

17½% similar waste from Ambar charkha ranges between 12% to 15% on the average. Of the 17½% mill waste, about 1/3 is trash and the remainder i.e. between 11% and 12% is marketable. In the case of Ambar wastage, there is no adequate data, to indicate as to what portion of the waste can either be re-used in the spinning process itself or otherwise. One member considers that of the mill-waste, 50% i.e. 1/2 and not 1/3 is unusable. One member disagrees with the estimate of 12½% to 15% in the case of Ambar yarn and he is of the opinion that the percentage of waste is on an average, 15%.

51. Dearth of sufficient research and significant material on this aspect of wastage leads to the conclusion that experiments to correctly assess this factor should be continued. Experiments should also be conducted to reduce wastage in spinning to the minimum and possibilities of re-using or otherwise utilising the waste should be explored.



TABLE I
Comparative Weaving Qualities of the Ambar and the Mill Yarns
(A.T.I.R.A.)

Quality particulars	Ambar yarn	Mill Yarn			Remarks
		(a)	(b)	(c)	
Breaks per Hank (Average)		3.20	3.50	..	Though Ambar yarns show fewer breakages no significance can be attached to the differences on account of the insufficient number of tests on only one handloom.
Winding.					
Warping		0.13	0.21	..	
Sizing		0.24	0.41	..	
weft filling.		2.20	3.55	..	
Breaks per loom hour (Average).		0.28	0.47	..	

TABLE II

Preparatory and weaving performances of the Ambar and the
Mill Reeling Yarns.

(A.T.I.R.A.)

	First Set		Second Set	
	Mill Reeling yarn	Ambar yarn	Mill Reeling yarn	Ambar yarn
Period	14th to 22nd Feb 1956	17th to 23rd Feb., 1956	24th to 27th Feb., 1956	28th Feb. to 1st March, 1956
Number of hanks used for warp .	32	27	28	30
Number of hanks used for weft .	28	23	27	29
Breaks per hank of warp while winding prior to warping .	3.8	3.5	3.2	2.9
Breaks per hank of warp while war- ping	0.28	0.26	0.14	0
Breaks per hank of warp while sizing	0.47	0.11	0.36	0.37
Breaks per hank of weft while filling pirns	3.4	2.1	3.7	2.3
Length of cloth woven in yards .	13.75	11.75	11.75	12.0
Time for weaving	9 hours	6 hours	7.5 hours	7.25 hours
Rate of weaving yards per hour				
(i) Only weaving	1.53	1.96	1.57	1.66
(ii) Weaving including prepa- ratory process	0.63	0.70	0.59	0.60
Breaks per loom hour	0.55	0	0.40	0.55
Ends/Picks	46/46	46/46	46/46	46/46

TABLE III
DIRECTOR OF INDUSTRIES
P.E.P.S.U.

EXPERIMENT NO. I

ABMAR CHARKHA YARN TEST
WEAVING ON FLY SHUTTLE LOOM
WITH PRIMITIVE AND PREPARATORY PROCESSES

S. No.	Name of Process or Specifications	Particulars	Remarks
1	Sizing	} 7 Hours	Note I Wife of the weaver worked with him jointly, when he commenced weaving. She supplied the ready made pirns.
2	Winding warp		
3	Warping		
4	Drawing & Beaming	2 hours. 40 mts.	Note II. One yd. piece of cloth produced is enclosed.
5	Fitting up warp on loom.	1 hour.	
6	Length of warp.	16 yds.	
7	Width of warp cloth	30".	
8	Count of warp Yarn	14 s.	
9	Count of weft yarn	14 s.	
10	Reeds or No. of ends per inch.	42	
11	Average No. of picks.	41/42	
12	Production per 8 hours	10 yds.	
13	Wages earned for fabrication	Rs. 1/9/- at -/2/6 per yd	
14	Quality of cloth	Satisfactory.	
15	If bad selvage give reasons.	No Problem.	
16	If defective cloth whether due to uneven or faulty yarn, uneven packing, faulty workmanship, breakage of warp threads or any other fault	No Comment.	
17	Misc. information	In all weaving processes took 13½ hours to finish the warp and cloth produced was 15½ yds.	

TABLE III—(contd.)
 DIRECTOR OF INDUSTRIES
 P.E.P.S.U.
 EXPERIMENT NO. 2
AMBAR CHARKHA YARN TEST
WEAVING ON FLY SHUTTLE LOOM
WITH USUAL PREPARATORY PROCESSES

S. No.	Name of process or specifications	Particulars	Remarks
1	Sizing	4 hours.	Weaver was assisted by another weaver who co-jointly worked with him except in weaving. He supplied him ready made pirns while the master weaver was weaving.
2	Winding warp	At an average of $2\frac{1}{2}$ hrs. (800 yds. per hour.)	
3	Warping	$1\frac{1}{2}$ hours.	
4	Drawing and Beaming	7 Hours.	
5	Fitting up warp on loom.	2 hours.	
6	Length of warp.	20 yds. (issued 5 lbs. of yarn).	One yard of cloth is enclosed.
7	Width of warp cloth	30".	
8	Count of warp yarn.	14s.	
9	Count of weft yarn	14s.	
10	Reeds or No. of ends per inch.	40s Reed and about 40 ends in cloth per inch.	
11	Average No. of picks per inch.	32/34.	
12	Production per 8 hrs.	$2\frac{1}{2}$ yds.	
13	Wages earned for fabrication	Nil value.	
14	Quality of cloth.	Poor.	
15	If bad selvedge give reason	Extensive breakage of threads.	
16	If defective cloth whether due uneven or faulty yarn, uneven packing, faulty workmanship breakage of warp threads or any other fault.		
17	Misc. information		

TABLE III—(contd.)
DIRECTOR OF INDUSTRIES
P.B.P.S.U.

MILL SPUN YARN EXPERIMENT NO. 3
WEAVING ON FLY SHUTTLE LOOM
WITH USUAL PREPARATORY PROCESSES

S. No.	Name of Process or specification	Particulars	Remarks
1	Sizing	Preparing the warp for sizing 1½ hours. Sizing process 1 hour.	Weaver was assisted by another helper worker for all processes except weaving. The helper supplied to him the ready made weft pirns for weaving.
2	Winding warp	5 hanks per hour.	
3	Warping	1-3/4 hours	
4	Drawing and Beaming. . . .	7 hours	
5	Fitting up warp on loom	One hour.	
6	Length of warp. . . .	20 Yds.	
7	Width of warp cloth	30".	
8	Count of warp yarn. . . .	14s.	
9	Count of weft yarn. . . .	14s.	
10	Reeds or No. of ends per inch.	40s.	
11	Average No. of picks per inch.	36/38.	One yard of cloth. is sent herewith.
12	Production per 8 hours. . . .	14 yds. (About).	
13	Wages earned for fabrication	Rs. 2/3/- at -2/6 per yd.	
14	Quality of cloth	Satisfactory.	
15	If bad selvedge give reason	No problem.	
16	If defective cloth, whether due to uneven or faulty yarn, uneven packing, faulty workmanship breakage of warp threads, or any other fault. . . .	No comments.	
17	Misc. information	I. The worker was not a hereditary professional weaver but an ex-trainee of work centre. II. In all weaving process took 12 hours to finish the work and cloth produced was 19½ yds.	

TABLE IV

Report of Shri S. R. Vasavada on weaving tests on Ambar Yarn

Handloom	Count 20's	Width 45"	Length 12 yards		Ends per inch 45	
			First piece		Second piece	
Warp hanks	.	.	.	33	.	33
Weft hanks	.	.	.	36	.	34
Time-warp preparing	.	.	.	5 hours	.	5 hours
Piecing time	.	.	.	5 hours	.	4 hours
Beaming time	.	.	.	1 hour	.	$\frac{1}{2}$ hour
Weaving time	.	.	.	13 hours	.	10 hours
Average production per hour	.	.	.	1 yard	.	$1\frac{1}{2}$ yards
Ends breakages	.	.	.	40	.	28
Ends per inch (Pick)	.	.	.	48	.	45

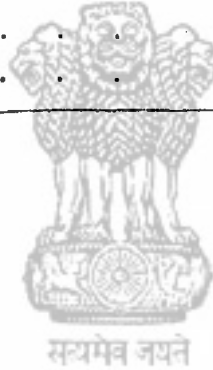


TABLE V

Productivity in Weaving—Frequency Distribution
(All-India Khadi and Village Industries Board)

		Ambar Yarn						Mill Yarn					
		Below 6 yds.	6 to 7 yds.	8 to 11 yds.	12 yds. and above	Total	Below 6 yds.	6 to 7 yds.	8 to 11 yds.	12 yds. and above	Total		
1	2	3	4	5	6	7	8	9	10	11	12		
1	Andhra	..	1	2	1	4	..	..	1	2	3		
2	Karnatak	2	2	1	..	5	..	2	2	1	5		
3	Maharashtra	..	4	3	..	7	..	1	6	..	7		
4	Gujarat	..	..	..	1	1	..	..	..	1	1		
5	Tamilnad	..	1	1	1	3	..	..	..	2	2		
6	Bihar	1	1	4	13	19	..	..	5	5	10		
7	Saurashtra	..	1	1	..	2	..	..	..	..	..
Total		3	10	12	16	41	..	3	14	11	28		
Percentage to the res- pective totals		7.3	24.4	29.3	39.0	..	..	10.7	50.0	39.3	..		

III ECONOMIC ASPECTS

52. Before discussing the terms of reference bearing on the economic aspects of the Ambar charkha programme, it is considered necessary to describe, very briefly, the overall picture which the Committee envisages for the decentralised textile industry. The entire question is linked with the assumptions on which the Committee has acted and which have already been stated in the introductory chapter. The provision of a greater measure of employment through the decentralised economy and progress towards a socialist State is the objective which has been kept in mind. The Ambar project comprising both spinning and weaving should, in the view of this Committee, be so designed, organised and implemented as to be related directly to the development and transformation of the village economy. It is realised that decentralisation of the textile industry right into the villages, may involve a very considerable financial and administrative effort. But in the interest of a more equitable distribution of opportunities and incomes and to eliminate, as far as possible, social and economic inequalities, increased financial costs commensurate with the economic results obtained and increased organisational endeavour are considered well worth it.

53. At one stage, serious consideration was given to the alternative of imposing an additional cess on mill production for meeting the increased costs involved in production in the decentralised sector. But this idea was abandoned and the view that has ultimately prevailed is that whatever assistance is to be given should be done through subsidies, till such time as technological improvements in the small spinning units reach a level when subsidies can be altogether abolished. A measure which is likely to greatly contribute to the realisation of the objective of doing away with subsidies in decentralised production is the progressive realisation of regional self-sufficiency. If any area or region under-takes internal consumption of yarn and cloth produced on a decentralised basis, that region should be given preference.

54. It has already been stated earlier that the Ambar charkha is only at the beginning of its evolution as a model, although even behind the present standard model of the Ambar charkha a great deal of technical research has gone in. The Committee had an opportunity of seeing a few other hand-spinning units also. But of those seen the Ambar charkha seems the best. The Ambar charkha no doubt, seems to have immense possibilities in enabling the decentralisation of an industry, producing a commodity, essential next only to food; and in providing greater gainful employment, particularly in the villages. But it has to be stated that while there is justification for a balanced optimism, there is also need for cautious advance and most careful organisation, in every direction. In fact, until further field experiments are carried out on an intensive scale, it

is not possible to arrive at ultimate conclusions. As will be observed from the next chapter, only an interim programme is being proposed for the present.

55. In order to investigate the economic aspects of the Ambar Charkha programme, the Committee drew up a questionnaire and issued it to a large number of parties, in the hope that as representative a volume of opinion and comments, as possible, might be obtained. The Directors of Industries in the 28 States of the country were addressed in addition to a few leading economists and Schools of Economics. The 6 Textile Institutes and the All India Khadi and village Industries Board under whose auspices the Ambar charkha tests had been conducted, were also requested to send replies to the questionnaire. Unfortunately, the response was not as good as was hoped, mainly for the reason that many of the addressees had not specifically investigated the various economic implications of the Ambar programme.

Subsidy for the Production & Distribution of Ambar Charkhas

56. The Ambar Charkha unit is composed of 3 parts—the spinning frame with 4 spindles, the *belni* or the sliver-making machine and the *dhunai modia* or the carding machine. On the basis of experience in the manufacture of 6,000 Ambar charkhas under the Board's pilot project, the cost of the spinning-frame and the *belni* comes to approximately 70 to 75 rupees. The *dhunai modia* is priced at Rs. 15 and rupees 5 to 7 is the cost of the carding bow. The cost of the tool-box is in addition. During the course of working with the Ambar Charkha, some spinners have combined the *dhunai modia* and the *belni* by adding an attachment to the *belni* itself. For such persons the entire equipment excluding the *dhunai modia* but including the tool-box will cost Rs. 75. If the *dhunai modia* is also used as a separate machine, the cost will average between Rs. 95 and Rs. 105. These calculations pertain to the standard Ambar charkha. As had already been mentioned earlier, the Ahmedabad Textile Industries Research Association have introduced certain improvements in the standard model. If the calender roller added by them is taken into account, an extra Rs. 12 will be necessary, bringing the total cost of the unit to Rs. 117. Since it is not absolutely essential that the *dhunai modia* and the calender roller be used by every spinner, a range of Rs. 75 to Rs. 125 has been adopted, giving an average of Rs. 100 per unit. This is the cost at the manufacturing point. Since, this includes over-heads at Rs. 8 to Rs. 10 per charkha unit and since there is no profit element involved, the selling price will be identical. At present, i.e. for the charkhas required under the pilot project, the production was arranged at 17 centres. The question was considered whether it would be possible to reduce the cost of production when for a bigger programme a much larger number of charkhas would be required and if centralised production was resorted to. But the committee is extremely anxious that for the reason already mentioned, the manufacture of Ambar charkhas, barring the iron and steel precision parts, should be undertaken on a completely decentralised basis.

57. The life of the Ambar charkha, excluding the precision parts, has been taken as 10 to 15 years. Out of the wooden structure the parts that will wear out and need replacement are the bearings and wheels. On an average, these will require to be replaced once in six

months and the total replacement cost per year for both the bearings and the wheels is estimated at Rs. 10 on the out-side. Taking the life of the charkha at the minimum of 10 years, the replacement cost works out to 10 per cent. and the depreciation period, 10 years.

58. The question now arises as to what, if any, should be the subsidy on the supply of Ambar charkha unit, costing Rs. 100 on an average, the depreciation period for which is 10 years and the replacement expenditure for which is 10 per cent. From among the 35 parties to whom the economic questionnaire was addressed, only 2 have given any suggestions in regard to this matter. One has recommended that 50 per cent. of the cost should be subsidised by Government. The other advises that 75 per cent. of the cost should be given as an out-right grant to the unemployed and underemployed and the remaining 25 per cent. should be realised on the hire-purchase basis. The Committee itself considers that any financial assistance which is given in this context should be linked with the output. The view was put forward that in consideration of the poverty of the peasants, some cash subsidy appeared inescapable. The hire-purchase system, it is argued, would mean realising the cost of the charkha out of the spinners earnings. Even if the repayment period is fixed at 5 years, the spinner would have to part with about Rs. 20 per year, from his earnings besides paying for essential replacements. Another proposal that was considered was the giving of an out-right subsidy only to *Harijans* and others in indigent circumstances. It was, however, felt that this would lead to avoidable discrimination and would be psychologically undesirable. But the Committee feels that one safe-guard must be provided. Out-right subsidy may be given in specially deserving cases but before doing so it must be ensured that proper use has been made of the charkha. The subsidy, if any, should be paid only after adequate production has been established. The Committee's unanimous view is that, in the first instance, the Ambar charkha set should be charged at full cost to the spinner to whom it is supplied. The cost should be recovered from him in easy instalments over 5 years, free of interest. It should be open to the appropriate agency authorised by Government, when approximately half of the cost has been recovered, to decide in the case of a particular person or class of persons as to whether any part of the remaining half of the cost should be treated as subsidy. One of the main criteria in deciding upon subsidy should be the use made of the Ambar charkha. If the level of production is such as to prove satisfactorily that good use has been made of the Ambar charkha, then as a bonus, the spinner may be exempted from repaying the balance of Rs. 50. By the time the situation is ripe for taking a decision on whether such exemption should be granted, the spinner would have been tested for at least 2½ years. This period is considered sufficient for objectively testing whether the spinner has used the Ambar charkha well or not. Until the time that a decision is made by the competent authority to grant exemption, the Ambar charkha should remain the property of the centre or other agency, whether it is a State Government, or the Khadi Board or a co-operative, until the last instalment is paid on the hire purchase system.

Working Capital required for the manufacture of Ambar charkhas

59. From the recommendation made in the previous section, it is obvious that initially, expenditure involved in the manufacture of

Ambar charkhas will have to be borne by Government. It is, therefore, necessary to provide some working capital for this purpose. The purchase price of the charkhas will be realised in easy instalments to be spread over a period of five years. In certain cases, a portion of the purchase price will have to be remitted. Since there will be no profit element in the manufacture and supply of Ambar charkhas, it would, in effect, mean that capital for the manufacture of Ambar charkhas will be depleted and will not be recouped in full from sales. This points to the necessity of providing adequate capital if the manufacturing programme is to be carried on without interruption. It is estimated that working capital required for the manufacture and supply of Ambar charkhas, at the rate of approximately 50 per cent. of the cost of the charkha sets to be made and supplied in any one year should be provided. In effect, it means that an amount equal to 6 months' production should be provided as working capital in any one year of the programme. It is also recommended that loans for working capital should be given free of interest. It is realised that exemption of such loans from interest charges will mean an additional indirect subsidy. It is recommended that the amount involved should be treated by Government as an additional subsidy but should not be taken into consideration when calculating the cost of production of yarn.

Wages of Spinners operating the Ambar charkhas

60. One of the most important elements in working out the cost of production of yarn is the wage bill. Before, therefore, the cost of production of yarn is considered, it is necessary to determine the wage factor. It is considered that it would be appropriate to fix the spinners' wage in the background of prevailing rates for agricultural labour. While in Malabar, Kerala and Madras the rate is between nine annas and twelve annas, in other States such as Madhya Pradesh, U.P. and Punjab it is higher. Under existing conditions, and as an interim measure, an average of 12 annas per day is considered not unreasonable if and when a production rate of 8 hanks per day is obtained. From the long-term point of view, this is really insufficient and the scheme must aim at a progressively higher wage level for the spinners. An eminent economist Professor D. R. Gadgil to whom the questionnaire had been addressed has cautioned the Committee that unless the spinners get an adequate wage the scheme would not be worthwhile. But the question has to be viewed in the background of prevailing circumstances of large scale unemployment and under-employment. There is a body of opinion which constantly emphasises that low wage earning occupations should not be encouraged. In the absolute sense, of course, the contention is indisputable. But this question cannot be dissociated from the prevailing level of earnings. The situation will have to be watched closely and every aspect of the matter examined, to assess whether any revision of the rates is warranted. There is another side to this problem. Even in places where the agricultural rate is higher, ranging between Rs. 1-4 and Rs. 1-8, the agriculturist earns this amount for a maximum period of say 200 days in the year. On the other hand, the Ambar programme envisages continuous work for the full year i.e. for 300 days. The lower wage of 12 annas per day, since it promises steady and continuous work throughout the year has an attraction of its own and may even be preferred to the higher rate of Rs. 1-4 or Rs. 1-8 for only about half the year.

61. Another question that requires examination is whether the wage for the spinner of Ambar yarn should be made uniform throughout the country or should it vary from State to State, depending upon the agricultural wage-level prevailing there. Today, despite the regional differences that exist, the All India Khadi and Village Industries Board, following the example of the All India Spinners' Association, is giving a uniform rate to spinners throughout the country. It is considered that the same practice may be continued for the present. If disparities increase, varied rates may become necessary later on. But as has already been stated before, the wage structure should be kept under constant watch and studied by Government. Adjustments should be made as and when necessary.

62. It is also considered that the wage should be given as a piece-rate and it is recommended that for every hank of yarn spun, a piece rate remuneration of As. $1\frac{1}{2}$ should be given. There is, however, one drawback. Since spinning of lower counts will result in higher output, in terms of hanks, the piece-rate system might act as an incentive to the production of coarser yarn. There is yet another aspect of this problem. With greater technological improvements in the Ambar charkhas and with greater practice, it will no doubt be possible, in the not too-distant future, for the spinner to produce even 12 or more hanks per 8 hours day. On the piece-rate basis, the daily wage would increase. This again emphasises the need for continuous study and review. Taking everything into consideration, the Committee is of the view that a flat piece-rate of $1\frac{1}{2}$ annas a hank for all counts, for the present, would be reasonable, based on spinning counts, for 16's to 32's. Since there is a possibility that this may encourage spinners to prefer lower counts below 16's, down even to 12's, it will be necessary to watch the situation closely and to revise the rate for the lower counts if such a trend is found. Similarly, the situation will have to be watched closely, if there is a trend towards finer counts. In any case, it will be necessary to watch closely the working of the piece-rate, as a whole, and review it further periodically.

Cost of Production of Yarn

63. In calculating the cost of production of yarn, several elements have to be taken into consideration. These are maintenance and depreciation of the equipment, training, interest charges on working capital, handling charges, cost of raw cotton, wastage, wages etc.

(a) Maintenance and depreciation

As has already been stated in a previous section, the cost of maintenance is estimated at Rs. 10 a year. Since the depreciation period has been worked out to be 10 years, the annual depreciation will be 10 per cent. of the cost of the Ambar charkha or Rs. 10. At the rate of production of 6 hanks of 18's per spinner, per day, the annual output for one spinner is estimated at 100 lbs. in a year of 300 days. Since two spinners will be operating each Ambar charkha unit, the total output on each charkha is estimated at 200 lbs. in the year. Taking 18's as the average count that will be produced on the Ambar charkha, the number of hanks that would be annually produced on

each charkha unit will be about 3,600. The maintenance and depreciation cost of Rs. 20 per year will have to be spread out, therefore, on these 3,600 hanks, which works out 0.1 anna per hank. The Committee's view is that the amount is so insignificant that it need not be taken into consideration in calculating the built-up cost of yarn.

(b) *Training*

The Committee is of the view that training cost should be looked upon as general development expenditure and should not, therefore, be included in working out the built-up cost of yarn.

(c) *Interest charges on working capital*

The view is that like training, interest charges on working capital should be regarded as an indirect subsidy and should not be reflected in the cost of the production of yarn.

(d) *Handling charges*

Generally speaking, due to the fact that production is envisaged on a decentralised basis, the expenditure on stocking, insurance and overheads will be considerably reduced. However, practical experience has shown that even where cotton is available locally, dealers raise prices to an inordinate degree in times of scarcity. In order to avoid such a situation, it has been the practice to keep roughly 50 per cent. of the cotton required stocked in godowns. In times of scarcity and rise in prices raw cotton is supplied from the central godowns to spinners. This helps in bringing down the market prices. On the whole, it is estimated that handling charges which include organisation, distribution and collection, work out to between 2-3 annas in the rupee, from cotton to cloth. For spinning alone, handling charges would come to roughly 1 anna in the rupee or 6½ per cent.

(e) *Cost of raw cotton*

For yarn of 18's, the price of raw cotton has been calculated at Rs. 700 per candy on an average for the *jarilla* variety. This covers elements like market fluctuations. Sometimes, the price is a little more than Rs. 700, at others it is a little less. But on an average, Rs. 700 per candy for 18's is considered adequate. For other counts, the price of raw cotton will naturally have to be adjusted.

(f) *Wastage*

It has already been stated in an earlier section that the majority view is that wastage may be calculated at 12½ per cent.; but in calculating the cost of raw material the total value should be taken, inclusive of wastage. Instead of, for example, taking Re. 0-14-2 as cost of cotton plus Re. 0-1-9 as wastage, it is necessary to take into consideration the cost of that amount of raw cotton which after allowing for a wastage of 12½ per cent. will yield 1 lb. of cotton. Provision for wastage, therefore, will increase slightly.

(g) *Wages*

This should be calculated on the piece-rate basis namely Re. 0-1-6 per hank.

The price of 1 lb. of yarn of 18's will thus be composed of the following items:—

	Rs. A. P.
(i) Raw Cotton	0 14 2
(ii) Wastage (including additional cotton required.) . . .	0 2 2
(iii) Spinning wages	1 11 0
(iv) Handling charges	0 2 8
<hr/>	
Total	2 14 0
<hr/>	

For other counts of yarn, depending upon cotton used, the cost of production of yarn per pound will need proportionate adjustment.

Difference in the cost of supplying yarn to handloom weavers as between yarn manufactured by the Ambar charkha and yarn reeled by the Mills.

64. A handloom weaver who is a member of a co-operative society gets his yarn of 18's delivered to him at Rs. 1-9-6 plus 6½ per cent. as middle charges. According to the information available to the Committee, a weaver who does not belong to a co-operative society can purchase similar count of yarn at Rs. 1-9-6 plus anything from 6½ per cent. to 12½ per cent. Since the amount of Rs. 2-14-0 is the wholesale cost of Ambar yarn of 18's, middleman's charges will be about the same as in case of mill yarn. In effect, therefore, the difference per pound of mill and Ambar yarn will be Rs. 1-4-6.

Subsidy

65. The precise reference to the Committee in regard to this matter is, what will be the subsidy required for the production and distribution of yarn. The main purpose behind any subsidy is to equalise the price of the handmade product with mill-made product by making the former competitive and worthwhile for the consumer to purchase. In the present context, whether the subsidy is given at the yarn point or cloth point, one difficult hurdle has to be overcome. The main objective in effecting technological improvements in the equipment and the processes which go into the manufacture of the cloth is to improve its quality to a degree that will reduce the difference between Ambar cloth and mill cloth to a minimum. The more the texture and the cloth improve, the more difficult it will become to distinguish between Ambar yarn and mill yarn or Ambar cloth and mill cloth. The subsidy is to be given on the Ambar product, whether yarn or cloth. It is essential that care is taken to prevent abuse of the subsidy by mixing the cheaper mill yarn with Ambar yarn and passing it off for the product which can claim the rebate. It appears that a large inspectorate and other organisational arrangements would be necessary for preventing the abuse. At one stage, largely to reduce the organisational difficulties, the Committee gave serious consideration to the levying of a

cess on mill yarn or cloth. Since the ultimate object is to equalise the price difference between the cottage and the mill product, it was considered that the levy of a cess was as good a means as any. There would also be an additional advantage in doing away with an expensive and complicated organisation. A cess would incidentally have also done away with the need for what has been known as "certification" in the field of khadi. It is the Committee's hope that Ambar cloth would ultimately take a natural and not a special place amongst the various kinds of cloth to be bought or sold and that ultimately there should be no "certification" necessary for keeping Ambar cloth "pure". But in the absence of a cess and due to the necessity of differentiating between Ambar and cloth woven from mill yarn for the purpose of subsidy, certification in some form may be necessary for some time. The idea of a cess was not favoured because in the first place it was feared that the price of an essential commodity like cloth would shoot up even higher and hit the consumer. Apart from the fact that the imposition of a cess would mean higher cost to the consumer, it would not even imply that Ambar yarn and Ambar cloth were necessarily being helped. The salability of Ambar yarn or cloth would depend upon the free-play of larger market forces and the spinner and weaver would be left to their own devices in counter-acting the play of these market forces. Under the circumstances, it would be difficult for him to establish himself within a free market. In short, the Committee, in the general intention of equalising market price of Ambar cloth, considered the possibility of providing such equalisation by imposing a cess on mill yarn and possibly also on mill cloth but is finally of the view that cess must be ruled out and that the better alternative would be a subsidy along with an adequate organisation for its distribution.

66. The Committee also recommends that in order to somewhat minimise the organizational problems, the subsidy should be on a single point; that it should not be paid at all until yarn has been suitably accepted, woven into cloth and sold. There are other advantages also. Since the subsidy will be at the sale-point, it will automatically tend to rationalise, not only the quality of the yarn but also the quantity that is produced. The touch-stone of salability and acceptability of the product in the market must inevitably have a healthy influence on the project as a whole. In fact, the scheme should be so organised as to ensure that yarn produced does not accumulate for want of weaving. The rationalisation of production in relation to demand will involve constant testing of the market and a very close study thereof, both from the view point of cloth and the price at which it will find a ready market. The Committee, therefore, considers that market analysis and testing is concomitant for the success of the scheme.

67. In consideration of the advantages described, the Committee is unanimously of the view that there should be a one-point subsidy and that it should be paid at retail-sale point. Since part of the Ambar cloth that will be produced will be for self-sufficiency, the Committee further recommends that on the portion of cloth prepared for self-sufficiency, the subsidy should be paid at the production point i.e., at the weaving stage. It is estimated that about

25 per cent. of the total production of Ambar cloth will be absorbed in the self-sufficiency scheme. It has already been recommended earlier that any Ambar project should be incorporated with the progressive realisation of regional self-sufficiency and should provide for the increase in consumption of Ambar cloth in local areas. This will not only strengthen the whole village economy but will greatly contribute to the realisation of the ultimate objective of doing away with subsidy altogether in the context of cloth production. If an area or region undertakes any internal consumption, it has to be repeated, such an area must be given preference for the location of the Ambar programme.

68. The last but not the least important question that has to be settled in this connection is the actual quantum of subsidy. In the first instance, the target must be equalisation of the prices of Ambar cloth and handloom cloth manufactured with mill yarn. In order to determine the difference between the two types of cloth, a few members of the Committee undertook to work out the costing. For Ambar cloth woven with yarn of 18 counts, the construction of which is 42 ends and 42 picks, having a width of 45" and using Ambar yarn costing Rs. 2-14-0 per lb.; the total cost comes to Rs. 1-4-1 7 per yard. This includes miscellaneous expenses like overheads, agency commission etc. but excludes rebate or subsidy. Handloom cloth of similar specifications, made with mill yarn priced at Re. 1-9-6 per lb., and adding thereto 6½ per cent. for handling charges, costs Re. 0-13-2 per yard without rebate. The average handloom rebate is 1½ annas in the rupee while that proposed by the All-India Khadi and Village Industries Board for Ambar cloth is 4 annas in the rupee. Taking into account the rebate element, the net cost of Ambar cloth will be Re. 0-15-2 per yard and the net cost of similar handloom cloth will be Re. 0-12-2 per yard. Four members are of the view that a subsidy of four annas in the rupee, for the present, at cloth point should be adequate to enable the Ambar cloth to be marketed to the extent of 75 per cent. of the cloth produced. Three members are of the view that a slightly higher subsidy, approximately 5 annas in the rupee may become necessary to enable the marketing of 75 per cent. of Ambar cloth produced. Four members are of the view that a subsidy of at least 6 annas in the rupee will be necessary for the purpose and three of them are further of the view that even so, it is doubtful whether all the cloth produced can be marketed.

69. In conclusion, therefore, it is recommended that a single point subsidy at the cloth stage, of a minimum of 4 annas in the rupee should be given; on about 75 per cent. of the cloth produced, it should be given on the retail-sale point and on about 25 per cent. of the cloth produced for self-sufficiency, the subsidy should be given at the production stage.

70. Special and continued effort should be directed, however, at every point towards a target in the first instance of bringing down the need for subsidy to a total of two annas in the rupee for Ambar cloth exclusive only of the cost of training, subsidised cost of the Ambar units and interest on working capital advanced to co-operatives etc. The subsidy now recommended is only a short-term measure, pending further technological and other improvements in

the Ambar charkha. The ultimate objective must be of attaining the point where a subsidy will no longer be necessary for decentralised spinning and weaving.

Working capital requirements for the production of Ambar cloth.

71. It is evident that for the production and sale of Ambar cloth, a fairly large amount of working capital will be required. The loan requirements for the manufacture of Ambar charkha have already been set down earlier. Excluding this and also the funds required for seasonal stocking of cotton, the estimate is that roughly 60 per cent. of the turn-over should be provided for the purpose. A somewhat lower percentage was at first considered. On the other hand, the fact remains that the production of Ambar cloth is a new venture and the market has not yet been tested adequately. A margin has, therefore, to be allowed for temporary hold-up of stocks. Apart from this, in the beginning, until the new product catches the public eye, the clientele would be of a specialised and somewhat restricted nature. There is still another consideration. Unlike factory production which is even and continuous no matter what the season, cottage production is very much influenced by the requirements of agriculture. So long as the cultivating season is not on, work relating to the production of cloth progresses well. But as soon as the fields require his attention, the spinner and the weaver in the rural areas naturally slow down their subsidiary activity and give the first priority to cultivation. During this period although yarn is not immediately required in bulk, it is to be stored to meet the greater demand of the off-season.

72. Later, it may be possible to reduce the provision for working capital but for the present 60 per cent. of the actual turn-over is considered reasonable. No accurate study of the requirements has yet been made. Experience of the working of the scheme and market reaction to the end-product over a length of time will determine whether any modification is necessary. Working capital of 60 per cent. as proposed does not compare unfavourably with the existing provision for the handloom industry. The Handloom Board provides working capital per loom, at the rate of Rs. 200 but the State Governments have been permitted within the over-all limit to provide Rs. 300 per loom in certain special cases. This figure excludes the requirements of production of yarn. While in the handloom industry, the starting point is the purchase of yarn, in the Ambar programme, the starting point is the purchase of cotton. All the stages from cotton to cloth are, therefore, covered. The Handloom Board also provides working capital to the apex weavers' co-operative societies for marketing. In the case of Madras and Andhra where the largest amounts have been given for the purpose, the amount available per loom in the co-operative sector works out to Rs. 27 and Rs. 22 respectively. In the Ambar charkha programme also, if the working capital at 60 per cent. is converted in terms of money it comes to about Rs. 500 per Ambar Charkha set, employing two persons and combined with the handloom for weaving. On the basis of 6 hanks per spinner per day in a year of 300 days, the total output of yarn would come to about 200 lbs of 18's. At the rate of

3.6 yards of cloth per pound, the total output of cloth would be 720 yards, the approximate value of which would be about Rs. 900. Sixty per cent. of Rs. 900 is Rs. 540. Keeping a margin for the fact that the Ambar charkha combined with the handloom will not be operated full time for all the 300 days, a round figure of Rs. 500 is proposed. The recommendation, therefore, is that working capital from cotton to cloth, in the case of the Ambar scheme and including working capital required for the handloom involved should be provided at the rate of approximately Rs. 500 per Ambar charkha set, employing two persons and combined with the handloom; but excluding the working capital required for stocking cotton seasonally and including the working capital required for marketing the cloth.

73. As in the case of working capital for the manufacture of Ambar charkha, so also for the working capital to be given for the production of Ambar cloth, it is recommended the loans should be advanced free of interest by Government. The indirect subsidy involved should not be included in the cost of production.

Cost of the Programme

74. In Chapter IV the Committee's specific proposals in regard to the Ambar charkha programme have been set down. Although 75,000 Ambar charkhas are being proposed to be installed in 1956-57, it will not be possible for all of them to go into production. A sufficient number will have to be reserved for training institutions like *Vidyalayas* and *Parishramalayas*, where instructors and spinners will be trained. The number required for these training institutions will have to be purchased outright and supplied to them as part of the training equipment. Only the balance Ambar charkhas can be taken into consideration for calculating expenditure on distribution of Ambar charkhas to the spinners, the working capital required for their manufacture and the actual production of cloth on which subsidy will have to be given. Since a quarter of the current financial year has already gone by and it may take some further time before the required number of spinners are trained and the required number of Ambar charkhas are manufactured and an adequate organisation brought into existence, it may not be possible for all the Ambar charkhas excluding those required for the training institutions to work to full capacity. In working out the cost, however, account is being taken of the full expenditure on a programme for establishing 75,000 Ambar charkhas. Depending upon the rate at which organisational and training arrangements are completed, a part of the total amount may actually be spent in 1957-58.

75. For operating 75,000 Ambar charkhas at 2 workers per unit, 1.5 lakh trained spinners will be required. At the rate of 100 trainees for a three-month course, the annual capacity of each *Parishramalaya* will be 400 trainees. Therefore, for 1.5 lakh trainees 375 *Parishramalayas* will be necessary. It has been stated earlier in this report that 1 instructor is expected to train 50 spinners. For each three-month course to which 100 trainees will be admitted, two instructors will be required. Since 4 courses in each *Parishramalaya* will follow each other and not be run simultaneously, two instructors per *parishramalaya* should suffice. In 375 *Parishramalayas*, 750 instructors would be required. In connection with the

Ambar charkha pilot project, the All India Khadi and Village Industries Board established some *Viayalayas* and *Parisramalayas*. In the latter, 2 courses of 6 months each were run and 50 workers were admitted to each course. One *Vidyalaya* has, therefore, an annual capacity for training 100 instructors. For 750 instructors, 8 *Vidyalayas* are required. Thus, under the training programme, 375 *Parishramalayas* and 8 *Vidyalayas* have to be established.

76. In calculating expenditure that will have to be incurred for establishing *Parishramalayas* and *Vidyalayas*, advantage has been taken of the financial pattern that Government have already approved for these institutions under the Ambar charkha pilot project. Only one modification has been introduced. According to this Committee's findings, 1 instructor should be able to train 50 spinners. Provision is, therefore, suggested for only 2 instructors for each *Parishramalaya*. On this basis, each *Parishramalaya* will cost Rs. 12,000 towards recurring expenditure and Rs. 750 towards non-recurring expenditure, or a total of Rs. 12,750. Expenditure on 375 *Parishramalayas* will be Rs. 47,81,250. In addition, stipends for 1.5 lakh trainees at Rs. 30 per person will come to Rs. 45 lakhs. Total cost of running 375 *Parishramalayas* will be Rs. 92,81,250. The cost of establishing 1 *vidyalaya* according to the financial formula already approved is Rs. 72,380 inclusive of stipends for both instructors and carpenters. The cost, therefore, of establishing 8 *Vidyalayas* will be Rs. 5,79,040/-.

77. For 375 *Parishramalayas* and 8 *Vidyalayas*, about 19,000 Ambar charkhas will be necessary. This figure is based on the following calculation: for 100 spinners to be admitted in each three-month course, 50 Ambar charkhas at 2 men per Ambar charkha should be sufficient. Since these courses will not run concurrently, 50 Ambar charkhas for all the 4 courses in the year will be enough. In 375 *Parishramalayas*, 18,750 Ambar charkhas will be required as part of the training equipment. In each *Vidyalaya*, 50 instructors are to be admitted for each six-month course. At the rate of 1 charkha for 2 instructors 25 Ambar charkhas will be required per *Vidyalaya* or 200 for 8 *Vidyalayas*. The total number of Ambar charkhas that will be necessary as teaching aids, therefore, comes to 18,950 or say 19,000. At the rate of an average of Rs. 100 per charkha, the cost of supplying 19,000 Ambar Charkhas will be Rs. 19 lakhs.

78. After taking into account 19,000 Ambar charkhas for the training institutions, 56,000 charkhas will be available for production proper. The figures that follow are based on the conclusions set forth in the previous sections. The cost of distribution of 56,000 Ambar charkhas will be Rs. 56 lakhs, half of which will be given as loan and the balance may have to be given as grant if the conditions mentioned in paragraph 58 are fulfilled. For the purpose of budgeting, it may be well to provide half the amount as subsidy. Working capital for the manufacture of 56,000 Ambar charkhas at 50 per cent. of the cost of production is Rs. 28 lakhs.

79. The annual production including production by *Vastraswavalambis* from 56,000 Ambar charkhas at 200 lbs. of yarn of 18 counts per unit, operated by two spinners, would be 1,12,00,000 lbs. At an average of 3.6 yards per pound 4,03,20,000 yards of Ambar cloth

will be produced over a twelve month period. At Rs. 1-4-0 (round) per yard, the money value of the cloth will be Rs. 504 lakhs. At the rate of 4 annas in the rupee, subsidy on cloth will amount to Rs. 126 lakhs.

80. Working capital for production and marketing of cloth at 60 per cent. of production will come to Rs. 3,02,40,000. Since this does not include working capital for purchase of cotton, a separate amount will have to be provided as working capital for buying cotton. It is considered that 20 per cent. of the production valued at Rs. 504 lakhs should suffice. This percentage is the same as has already been accepted for calculating the working capital required for purchasing cotton for the manufacture of traditional khadi. At 20 per cent., therefore, the working capital required for the present scheme will be Rs. 1,00,80,000.

81. For workshops and finishing centres, Rs. 17.4 lakhs and Rs. 16.12 lakhs respectively may be provided. For organisation, a sum of Rs. 12 lakhs would be required. These figures are based on certain calculations that have been worked out by the Khadi Board in connection with their own Ambar charkha programme.

82. In brief, the total cost of the 75,000 Ambar charkha programme will be as under:—

Item	Grant	Loan
	Rs.	Rs.
1. Establishment of <i>Parishramalayas</i>	92,81,250	..
2. Establishment of <i>Vidyalayas</i>	5,79,040	..
3. Supply of 19,000 Ambar charkhas for training institutions	19,00,000	..
4. Distribution of 56,000 Ambar charkhas for production proper.	28,00,000	28,00,000
5. Working capital for manufacture of 56,000 Ambar charkhas . . . . .	..	28,00,000
6. Subsidy on cloth at As. -/4/- in the rupee.	1,26,00,000	..
7. Working capital for production and marketing of cloth. . . . .	..	3,02,40,000
8. Working capital for purchase of cotton . . . . .	..	1,00,80,000
9. Finishing centres	6,12,000	..
10. Workshops	17,40,000	..
11. Organisation	12,00,000	..
TOTAL	3,07,12,290	4,59,20,000

83. As explained earlier, the above-mentioned amounts represent the full cost of a programme involving the installation of 75,000 Ambar charkhas. The actual cost to Government in the current financial year will be much less. While the full amount, it is hoped, will be spent on the establishment of *Parishramalayas* and *Vidyalayas*, including cost of supplying 19,000 Ambar charkhas as training equipment and on the manufacture and distribution of the balance of 56,000 Ambar charkhas, expenditure on subsidy will be considerably reduced during 1956-57. Only after the training and organisational arrangements have been completed, will actual production commence. It is anticipated that a good 50 per cent. of the amount of Rs. 1.26 crores shown against subsidy on cloth will have to be paid during 1957-58. Working capital requirements for production and marketing of cloth and for purchase of cotton will be correspondingly reduced.

84. For finishing centres, workshops and organisation, the full amounts indicated in the summary of financial costs will have to be paid out in the current financial year.



IV. THE PROPOSAL: PROGRAMME AND ORGANISATION

81. It has already been emphasised during the course of examination of the technical potentialities of the Ambar charkha and the economic implications of any programme based thereon, in chapters II and III, that although the Ambar charkha undoubtedly seems to have great possibilities for bringing about the decentralisation of the textile industry and that there is scope for a balanced optimism, an equal emphasis has been placed on the fact that there is need for cautious advance. By and large, there has not been sufficient experience gained and sufficient data collected to draw ultimate conclusions on which heavy commitments could be based. Laboratory and field experiments must continue on an extensive scale before the final picture for the implementation of the project under the Second Plan can emerge. It is, therefore, considered desirable to set down definite recommendations for only the first year of the Plan. In making any specific proposal in regard to the number of Ambar charkhas that may be introduced in 1956-57, three aspects have to be examined. The over-all competence of the organisation, both in the field and at head-quarters, the capacity to manufacture the Ambar charkhas and its ability to make available a sufficient number of trained spinners to ply the number of charkhas manufactured.

86. According to information given by the Secretary of the Ambar Samiti under the Sarva Seva Sangh (also a member of the Committee), there is a capacity for the manufacture of 10,000 precision parts, per month, by the centres and organisations working for the Sangh. Due, however, to the prevailing uncertainty about the ultimate fate of the Ambar programme, the directive given by the Sangh restricted the production to 3,000 parts per month. Even so, the Sangh has about 12,000 parts already in stock and as soon as a final decision is reached they will be in a position to go ahead with their production programme and expect to reach an out-put of 10,000 parts per month after a period of three or four months. The Committee also understands that negotiations are being conducted with some ordnance factories for the manufacture of precision parts in bulk. As for the non-precision parts of the Ambar charkha, a recommendation has already been made that these should be manufactured on a decentralised basis by village carpenters and village black-smiths.

87. There is no doubt that for this work, a great deal of initiative and organization is necessary on the part of the authorities dealing with the programme. In addition to the Central and State authorities including Governmental authorities as well as the Khadi Board, the Sarva Seva Sangh and others, it is recommended that the programme should be integrated with the Community Project Areas and the National Extension Service run by the C.P.A. wherever a C.P.A. or an N.E.S. Project is sufficiently established. This will enable the organisers to draw upon the experience and resources of an organisation which has already been established in a large measure and which is expected to cover the entire face of the country in the near

future. The organisation aspect cannot be over emphasised. The Committee is of the view that organisation might very well prove the weakest link, if the greatest possible attention is not given to this aspect. In decentralised production, where the production units are necessarily scattered, where cotton has to be supplied to a large number of cottages all over the country, where yarn and cloth have to be collected from innumerable village homes for supply to marketing depots, organisation and administration must play an even more important role than in the established sector of the industry. Every unit of the set-up as a whole must be so geared as to make for smooth and efficient implementation of the programme. Unless really adequate arrangements are made in the organisation, administration and accounting to cover the whole programme both at headquarters and in the very wide territorial field to be covered by the Ambar charkha programme, there would be grave risk of heavy losses and the success of the programme will be jeopardised.

88. In regard to the availability of trained hands, according to information given by the Secretary of the Ambar Samiti, the present position is that 400 instructors have already been trained in the 15 *vidyalayas* sanctioned under the pilot project. In addition to these, the Sarva Seva Sangh has another 300 trained workers. Apart from these 700, another three to four hundred instructors are at the moment under-going training in the Board's *vidyalayas*. By July or August, it is estimated that 1,000 trained instructors will be ready for being drafted. It is considered that each instructor will be able to supervise 100 and train 50 spinners. A little after the middle of the year, therefore, 50,000 spinners should be ready to start work, in addition to about 4,000 spinners trained under the Board's pilot project.

89. While still on the subject of training, the Committee would like to stress that special attention should be given to training of both spinners and instructors. Training should be regular, systematic and sufficient. It is considered that training in the use, handling and maintenance of the Ambar charkha set, combined with practice, is essential for a minimum period of 3 months, in order that the spinner might attain adequate competence in production. The Khadi Board's field experiments under their pilot project have amply proved that there is a very intimate correlation between training and practice on the one hand and productivity on the other. After the minimum period of 3 months' training and practice, steady practice will significantly improve both quality and productivity. Unlike production in factories, with the Ambar charkha, the worker's skill increase curve will continue to rise for a much longer time. It is, therefore, recommended that at the end of the 3 months' training period, every spinner should be provided with an Ambar charkha set in his home for immediate use, without break. In fact, one of the conditions for receiving an Ambar charkha on the hire-purchase system should be a certificate of proficiency which may be awarded at the end of a successful completion of the training period. If a trainee is unable to attain the minimum speed and efficiency during the prescribed period, he should be required to undergo further training, until he is good enough to merit a proficiency certificate. But the minimum speed and efficiency should be strictly adhered to in order to ensure that the spinner will make proper use of the Ambar charkha that may be supplied to him on the hire-purchase system.

90. It has already been indicated in an earlier chapter that the cost of training should be regarded as development expenditure and not be reflected in the built-up cost of yarn or cloth. It is, therefore, recommended that the full cost of training should be met by Government. Both Government and the agencies and organisations responsible for the implementation of the Ambar programme must ensure that the training scheme keeps pace with the plan for production.

91. Subsequent to the completion of the first pilot project, Government have sanctioned, in connection with the installation of an additional 10,000 Ambar charkhas, 100 new *Parishramalayas* in addition to the continuance of 15 *Vidyalayas* and 100 *Parishramalayas* established under the first pilot project. It appears, therefore, that there should be a continuous supply of a large number of trained instructors and spinners, after each successive training course, for working the 1956-57 programme, as envisaged by this Committee, after the requisite number of additional *Parishramalayas* and *Vidyalayas* have been established for the increased number of Ambar charkhas.

92. The Committee considers that as part of the first phase of the programme the traditional charkha should be progressively replaced by the Ambar charkha. Existing Khadi looms should all go over to Ambar yarn. There are of course, a few persons who may like to continue to spin on the traditional charkha, as a matter of faith or in adherence to an old ideal. There is no harm in such persons continuing to ply the charkha of their choice; but all others must be replaced, as fast as possible, by the improved Ambar charkha. Production on the latter is more than double that on the traditional charkha; the wages are about double also and the price of the resulting cloth is just half of the khadi woven out of yarn spun on the old equipment. The superiority of the Ambar charkha over the traditional charkha is established in every respect. The replacement proposed, therefore, should be effected without delay.

93. The next phase should cover looms now using mill yarn but which are situated in the neighbourhood of the existing spinners of khadi yarn who will switch over to the spinning of Ambar yarn in keeping with the first phase described above. This will help in forging a link between the weaver and the spinner, will cater for the immediate supply of yarn in fulfilment of an established local demand and simultaneously eliminate expenditure on transport of yarn and other handling arrangements. This linking of the spinner and the weaver will also assist in the realisation of regional self-sufficiency which the Committee considers a very important facet of the programme. The idea of regional self-sufficiency should be propagated and if in any area, local leaders and village headmen undertake to absorb the Ambar cloth produced, that area should be given a high priority.

94. It is recommended that during the first year of the Second Plan, about 75,000 Ambar Charkhas in all should be installed. At the rate of an output of 200 lbs. of yarn per charkha, per year, and taking 3·6 yards to the pound, the total output of Ambar cloth as a result of the installation of 75,000 Ambar charkhas will be about 50 million yards a year. This, the Committee considers a modest target, within the reach of the Ambar Charkha at its present stage of development,

if organisation, training and the programme for manufacture of Ambar charkhas are able to keep pace.

95. After the scheme has run for about 6 months, a review should be made, sometime in December 1956. Results of 6 months' implementation should be examined and on the basis of the findings, the scale of programme for 1957-58 should be determined. It is considered essential that decision for the second year of the Plan should be taken well in advance so that a break is avoided and the organisers are given sufficient notice to make arrangements that would be necessary for a larger programme. It may be possible in December, 1956, to even take a decision for 1958-59, if sufficiently promising data becomes available. It is anticipated that if a fair rate of progress is maintained, it may be possible to introduce anything upto 2 lakh charkhas even in 1957-58. But it has again to be emphasised that a thorough examination of the programme and its results is periodically necessary, until the practicability of the Project is proved beyond doubt. Only then should the scope be extended in a larger way.

96. Some suggestions about the location of the project have already been made. It is further recommended that preference should be given to those areas where there is great need for providing employment. Another consideration should be the availability of locally grown cotton. But what is to be emphasised most of all in the context of location is that the entire Ambar programme should be integrated with the C.P.A. and National Extension Service areas. Doing this will ease the administrative and organisational problems and lend a certain stability to the project.

97. The Committee is of the view that in so far as the class of persons among whom the Ambar programme is to be propagated are concerned, the existing weavers and their families should be drawn upon as extensively as possible. The creation of a new class of weavers should definitely be avoided. If the members of handloom weavers' families are encouraged to take to spinning, the consumption of Ambar yarn for weaving cloth will be to a great extent ensured. In any case, a new class of spinners and weavers at the cost of existing weavers will, in the view of this Committee, be most undesirable. In one of his books entitled "The Economics of Khadi", Gandhiji stated, "Those weavers who do not take to weaving handspun are cutting their own throats, because the natural consequences of the spread of mills will be the destruction of weavers, as it has been that of handspinners. There is no case of handspinning ever hitting a single weaver. In fact, it is his sole protection". Any Ambar project comprising both spinning and weaving should be so designed, organised and implemented that as far as possible, existing handlooms are brought into the scheme to weave Ambar yarn, instead of new handlooms being set up specially for the purpose. Subject to organizational problems being solved in a practical manner, members of weavers' families should be trained and supplied with Ambar charkhas in preference to others. 75 per cent. of the spinners (other than the present spinners of traditional khadi yarn) should be from weavers' families, until nearly all such families have been provided with at least one, preferably two Ambar charkha sets.

98. The Committee is not in favour of establishing centralised spinning units. Subject to organisational problems being solved in a practical manner, Ambar yarn produced for weaving should, except only for the training to be imparted, be spun only in the spinners' homes and not at spinning centres. *Parishramalayas* must necessarily be a passing phase and should be established only for training purposes. Some of the *Parishramalayas* visited by the Committee gave too strong an impression of little factories. One of the features of these *Parishramalayas* that particularly caused anxiety to the committee was the presence of small children, under the age of 10, engaged in regimented productive activity. It is quite another matter if these children take a hand at spinning, or even weaving, as a hobby within their homes and in their leisure time. But organised spinning and weaving by young children of tender age under conditions which are not very unlike those prevailing in factories is considered objectionable.

99. On the administrative side also, the scheme should be progressively decentralised. The Central agency (Government or the Khadi Board) should limit its functions to:

- (a) allotment of grants, subsidies and loans;
- (b) advice and directions on technical and organizational matters;
- (c) research and testing;
- (d) co-ordination between decentralised agencies;
- (e) "certification", to the extent necessary;
- (f) export promotion.

100. Government should set up a special Directorate, strongly staffed by persons, qualified and experienced in the technical aspects, economics, statistics and administration of large scale organisation of village industries, including community projects and co-operatives, to continuously and closely watch the progress of the scheme. There should be an annual review of the progress and further prospects of the scheme, with special attention to organisation, technical improvements, quality of the product, productivity, workers' wages, subsidy element and the extent of its further needs, prices and disposal of yarn. A Textile Research Centre should also be set up for studying and investigating the problems of the decentralised textile industry.

101. One method which is strongly recommended for decentralising the Ambar programme is the establishment of co-operative societies at all levels and for all purposes through which the actual production, distribution and marketing of yarn and cloth could be arranged. Every encouragement and facility should be given for building up a net work of co-operatives for running the Ambar project. But whatever the organisation or location or whatever the mode of operation, any Ambar project must be related directly to the development and transformation of the village economy.

102. In any scheme involving the production of consumer goods, the organisation that is built up for marketing the end-product will really, in the long run, determine its success or failure. In the background of the Committee's recommendation that there should be only a single point subsidy at the retail-sale stage, the marketing aspect

becomes all the more important. In a scheme like the present, where the product is still in the process of evolution and for which, due to its being still at the pioneering stage, market-testing in any appreciable degree has not yet been possible, the organisation that will attend to the sales side of the project must be built up with the utmost care. The future prospects of the Ambar programme also depend on how well the product can be marketed. For the ultimate objective of doing away with the subsidy, in course of time, has to be kept in view. No commodity which, after the trial and the testing period, cannot stand on its own merits, must inevitably die a natural death. The Committee's approach very definitely is that the artificial prop by way of subsidy is strictly an interim and a passing phase. Every stage in the production of Ambar yarn and Ambar cloth must be designed with an eye on its acceptability to the consumer and its capacity to be sold in a competitive market.

103. The Committee has no hesitation in recommending that in order to tide over the difficult transitional period, Government should again lend a helping hand and to the maximum extent possible, obtain their own requirements of cloth from Ambar cloth. It would be useful if Government requirements are linked to the production project directly through the headquarters procurement organisation on the one hand and headquarters production organisation on the other.

104. Emporia are a recognized means of organizing marketing. Ambar emporia should be established in all large towns of the country. But this will not be sufficient. A net work of sales depots in districts and rural areas must also be organised. In addition, sample rooms could be opened, with advantage, under marketing organisations in important cities. Samples of all principal items, along with information about rates, quality, designs and ready stocks in different production centres should be always readily available in order to secure orders and do wholesale business. As production increases, godown and stocking centres must also be established.

105. Since finishing operations are very important for marketing of cloth, finishing centres should be set up in the neighbourhood of weaving units. These centres should be planned forthwith and the possibility of specialisation examined. Each finishing centre must have a bleaching and calendaring section, a dyeing section, a printing section and designing sections for both printing and weaving. The last mentioned, namely designing section is very important and has special significance in the context of any export trade that might be sought to be developed. It is a known fact that printed hand-spun, hand-woven cloth has a very promising market in foreign countries and provided the designs are attractive, varied and conforming to the tastes of the people for whom they are intended; and provided adequate publicity is organized, there is reason to hope that a flourishing export trade in printed Ambar fabrics can be developed. Publicity in fact is a very important factor in marketing and must be given special attention both for internal and external sales. Another factor which will need attention is quality marking both at the yarn stage and the cloth stage. Quality marking will help in gaining the confidence of the consumer in Ambar cloth at home and abroad and will simultaneously increase its salability.

106. If the type of marketing, organizational and other facilities described above are afforded to the Ambar charkha programme, the Committee believes that decentralised production of Ambar yarn and Ambar cloth will prove a fruitful source, not only for a large volume of employment but that this employment will be steady, full-time and the wages earned therefrom will progressively tend to give to the spinner and weaver a better living wage. As stated earlier, one basic assumption on which the Committee has worked is the need to give more employment. In fact, the cause which the Ambar programme is expected to serve is this very need to relieve the existing acute unemployment and under-employment, particularly in rural areas, by providing substantive or subsidiary occupation to the villager and thereby improving his economic condition. The Ambar programme might even make some contribution in relieving educated unemployment in the urban areas, if as a result of research, productivity increases and the earnings go up.

107. At this stage, it is difficult to assess the extent to which the Ambar programme will contribute towards the solution of the unemployment problem. The future scope and size of the programme and therefore, its ultimate capacity to give more employment will depend on the successive evolution of the programme made periodically and the resultant expansion of the programme, as a consequence of these findings. The need for continuous research, experiment and evaluation has already been sufficiently stressed. The faster the technological progress, the more efficient the administration, the greater will be the size of the programme and the greater will be the latter's capacity to provide gainful employment.

108. The Committee has, for the present, made a specific recommendation only for 1956-57. On the basis of 75,000 Ambar Charkhas, approximate employment estimates are as under:—

(1) Spinners—full-time employment for 300 days in the year	About	1,50,000
(2) Weavers	"	10,000
(3) Weavers' assistants	"	20,000
(4) Carpenters	"	1,000
(5) Instructors and workers	"	1,600
(6) Others	"	1,000
	About	<u>1,83,600</u>

Thus even upon the interim programme of 75,000 Ambar charkha which the Committee is recommending nearly two lakh persons will obtain employment. If in a decentralised system, the spinners and weavers work only part-time, the figures will increase and relief will be larger in terms of providing subsidiary employment. The potentialities are promising and during the Second Plan period, if progress and technological improvement continue rapidly, the Ambar programme should become instrumental in making a considerable contribution to the unemployment problem.

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- (1) The Ahmedabad Textile Industries Research Association, Ahmedabad.
- (2) The Technological Laboratory, Indian Central Cotton Committee, Adenwalla Road, Matunga—Bombay-19.
- (3) The Krishnarajendra Silver Jubilee Technological Institute, Bangalore.
- (4) The Bengal Textile Institute, Serampore.
- (5) The Kala Bhavan, Baroda.
- (6) Government Central Textile Institute, Kanpur.
- (7) Government Textile Institute, Madras.
- (8) Government Institute of Dyeing & Calico Printing, Ludhiana.

110. The office of the Textile Commissioner helped in preparing the design of experiments which were conducted at the different institutes.

111. We received ready and willing help from a large number of individuals, both official and non-official. Discussions with many of them were of great help in enabling the Committee to reach its conclusions and recommendations. We would like to make special mention of:—

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2. Shri Shankerlal Banker, constructive and social worker, Ahmedabad.
3. Shri Krishandas Gandhi, Sarva Seva Sangh, Wardha (M.P.).
4. Shri Prabhudas Gandhi, Secretary, Harijan Ashram Sabarmati, Ahmedabad.
5. Shri Raojibhai Patel, Member, All-India Khadi & Village Industries Board, Bombay.
6. Shri Pranlal S. Kapadia, Member Secretary, All India Khadi & Village Industries Board, Bombay.

7. Shri Vikram Sarabhai, Director, Ahmedabad Textile Industry's Research Association, Navarangpura, Ahmedabad (9).
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11. Shri Hari Ram Chopra, Secretary, Punjab Khadi Gramodyog Sangh, Adampur.
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13. Shri C. Nanjundayya, Director, Technological Laboratory, Indian Central Cotton Committee, Adenwala Road, Matunga, Bombay-19.
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15. Shri L. C. Gupta, Joint Director of Industries, U.P., Kanpur.
16. Shri Paramjit Singh, Director of Industries, P.E.P.S.U.
17. Shri Thirumlaiswami, Khadi Special Assistant, Tirupur.
18. Shri J. N. Singh, Principal, Government Central Textile Institute, Kanpur.
19. Shri J. D. Sundaram, Director of Economic Research, Khadi & Village Industries Board, Bombay.
20. Shri P. V. S. Murthy, Assistant Director, C.S.O., New Delhi.

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Summary of the Ambar Charkha programme of the All-India Khadi and Village Industries Board based on The Board's pamphlet on the subject with subsequent modifications.



APPENDIX I

Summary of the Ambar Charkha Programme of the All India Khadi and Village Industries Board based on the Board's Pamphlet on this subject.

1. The first and fundamental assumption on which the Khadi Board has based its Ambar Charkha programme is the anticipation that the production of cloth by mills and powerlooms would be frozen at its 1955-level and that the total estimated additional requirement of cloth during the Second Plan period and the total quantity of yarn required for this additional yardage would be produced on a decentralised basis. According to the calculations made by the Karve Committee, the anticipated increase in cloth consumption, in the last year of the Second Plan would be between 1,400 and 1,700 million yards. For this, or say, an average addition of 1,500 million yards of cloth, the Khadi Board have estimated that in 1960-61, the output of yarn should be 412.5 million lbs. The Board's programme has, therefore, been prepared in order to achieve the target of a production of 412.5 million lbs. of yarn during the last year of the Second Plan.

2. Before the various aspects of the programme are described in detail, it would be appropriate to indicate the principal inspiration behind the Board's planning in general and their attitude to the charkha, in particular. For their concept of the perfect charkha has its origin in what Gandhiji said and wrote about this subject. To Gandhiji, the charkha was an effective instrument, not only for attaining total self-sufficiency in cloth, through the utilization of wide-spread knowledge and skill in hand-spinning and hand-weaving, and consequently total independence from foreign imports, but also for inculcating the lessons of self-help and profitable use of leisure time, to secure relief from poverty. In his view, the universalisation of the charkha and effective integration of hand-spinning with hand-weaving, alone, would provide the true basis for an effective revival of India's decentralised cotton textile industry. To be acceptable to Gandhiji, a charkha had to be capable of being introduced and operated in the smallest of India's cottages; had to be capable of producing yarn of good quality and a definite quantity to assure the spinner, a living wage and had to be capable of being manufactured and serviced by the village artisan. According to Gandhiji, competitive economy gave rise to aggression and violence and ultimately led to destruction. The growth of population, he felt, necessitated the giving of part-time occupation to the village-folk, when agriculture did not demand their time and attention. The Khadi industry, in Gandhiji's belief, was the most suitable medium for affording this part-time occupation for supplementing the meagre incomes of the agriculturists.

Evolution of the Ambar Charkha:

3. It was as far back as 1919 that a search for a better and more effective charkha and one that was nearer to Gandhiji's ideal, was

initiated. For, although the traditional charkha was satisfactory from the employment view-point, it was unable to give the spinner a living wage and unable to produce yarn in sufficient quantities. It, therefore, did not have the capacity to ensure self-sufficiency in cloth. In 1923, Gandhiji offered a prize of Rs. 5,000 for research to evolve a charkha with a higher production potential. Many models, both indigenous and foreign, were presented to him, but they were found unsatisfactory, either because of their cost or involved mechanism. Shri Purshoutam Das one-spindle 'Jeevan charkha' and Shri Kale's two-spindle and six-spindle charkhas attracted some attention but even these did not pass the tests that Gandhiji had laid down. In 1929, Gandhiji once again offered a prize, this time of Rs. 1 lakh, for the invention of a charkha which satisfied all the prescribed conditions. Shri Kale's improved 10-spindle charkha manufactured in 1937, was considered satisfactory on the score of productivity and the quality of its yarn. But this too was rejected because it was not capable of being manufactured in the village and was too large to be set up in the average small village hut. Its price also was beyond the means of an average villager. A Japanese model was offered for scrutiny but this too was found unacceptable, because of its intricate mechanism and because it was beyond the financial means of the village artisan. Two charkhas, one constructed by Rajgopalan and another by Nagin Das came into prominence but these too failed to satisfy the prescribed criteria. It was only in 1949, that a two spindle wooden charkha was given to the Akhil Bharat Charkha Sangh by Shri Ekambara Nathan of Papankulam in Tamilnad. The simple mechanism of the charkha, its production capacity and ease of manufacture led the All India Spinners Association to take it up for further research. Shri Ekambara Nathan was rewarded for his enterprise and was also given facilities for further experimentation, with a view to improving his model. In 1950-51, Shri Ekambara Nathan, assisted by a colleague, produced a four-spindle charkha, made of wood only. The introduction of the multigrooved pullies to regulate the count of yarn was one of its special features. However, the operational problems continued to be many and further research was, therefore, ordered. In August, 1953, another model was invented with gear wheels and the construction of which was almost wholly in metal. The operational difficulties, still continued and its price which was in the neighbourhood of Rs. 400 was considered too high in conditions prevailing in the rural areas of the country. Finally, about the close of the year 1954, Shri Nandlal constructed a four-spindle wooden charkha, based on the previous models of Shri Ekambara Nathan. The wooden bobbin was replaced by a paper-bobbin and several other similar improvements were effected. As a result of this research, the Ambar Charkha came into existence. It was found cheap, efficient, with a comparatively higher productivity and was capable of being manufactured by the village artisan.

Description of the components of the three-units Ambar Charkha set.

4. The Ambar charkha set consists of three-units:—

(a) *The dhunai modia* (Carding Unit).—The *dhunai modia* or the carding machine consists of a large wooden wheel which is linked by a cotton band, to a grooved pulley. This pulley rotates a fluted feel roller about 3" long and 3/8" in diameter. The fluted roller

delivers the lint to a wooden cylinder fitted with tin-spikes. Connected with this wooden cylinder, is a small wire cage 6" wide, 18" long and 8" high. The cylinder revolves at a high speed when the main wheel is operated and the fibres are thrown out, by centrifugal force, into the cage.

(b) *The belni* (Silvering Unit).—This consists of 2 pairs of steel drawing rollers, the lower rollers are fluted while the upper are covered by rubber. The loose cotton fibres opened by the *Dhunai Modia* are drawn between these rollers and formed into rovings by a funnel and collected in a small tin cylinder. The tin cylinder is 8" in height, 5" in diameter and has a ring fixed at the centre.

(c) *The Charkha* (Spinning Unit).—A four-spindle, hand-operated wooden spinning wheel, 21" long, 16" broad and 21" high. Apart from the frame made of seasoned wood, there are 3 wooden multi-grooved pulleys, one with four grooves, another with three and the third with two, each of which is connected with the main hand-operated wheel by cotton bands. The iron parts of the charkha consist of four-spindle rings, four fluted rollers, one pair of gear wheels, arbour, boss, travellers and springs. There are also 4 pairs of rubber rollers, over the metal-fluted rollers, about 1½" broad.

All the three units together cost Rs. 100.* The price of the ring frame is Rs. 40; that of the *Dhunai Modia* Rs. 35 and that of the *Belni* is Rs. 25.

Assumptions on which the Board's Draft Programme is based.

5. After the present Ambar charkha set had been standardised and before the Board drafted its programme, it ordered a number of tests and experiments at Wardha and Nasik. According to the findings of these tests:—

- (a) a man working on the Ambar Charkha can produce, on an average, 8 hanks of 20-counts per day of 8 hours, from carding of cotton to spinning, or 16 hanks of yarn per day, if he limits his labour to spinning only;
- (b) the yarn so produced is in the range of 12 to 40 counts depending on the quality and staple of the cotton used; and
- (c) the tensile strength of the yarn produced is between 70 to 100 per cent.

Another major assumption which plays an important part in determining the cost of production of yarn, pertains to a conclusion recently reached by the Board that a spinner should get a minimum of annas 0-12-0 per 8 hour working day.

Scope and principal features of the programme.

6. The Board's programme envisaged the installation of 25 lakh Ambar charkhas which in 1960-61, are estimated to produce 412.5 million lbs. of yarn. The following table gives at a glance, information in regard to the annual installation of Ambar charkhas, annual output of yarn, annual production of cloth, annual consumption of yarn for "Khadi" and yarn that would be available for distribution to the handloom weavers:

*Subsequently, the Ahmedabad Textile Industries Research Association has evolved an improved model which according to information received from the Board costs between Rs. 120 & Rs. 130.

TABLE

	1956-57	57-58	58-59	59-60	60-61	Total
1. Annual Output of yarn (million lbs.)	20.6	61.9	144.4	268.2	412.5	907.6
2. Annual additional charkha sets required (lakhs)	1.25	2.50	5.00	7.50	8.75	25.0
3. Total charkhas operating.	1.25	3.75	8.75	16.25	25.00	25.00
4. Annual Production of Cloth (Million yards)	75	225	525	975	1500	3300
5. Annual production of Khadi	75	225	225	225	225	975
6. Annual consumption of yarn in Khadi	18.75	56.25	56.25	56.25	56.25	243.75
7. Yarn available for distribution to the hand-looms	1.85*	5.65*	88.15	211.95	356.25	663.85

*Though surplus over the actual requirements, yarn may not be available for sale during the first year and only 3.65 million lbs. may be available in the second year, the balance being absorbed in stocks or in transit with the production centres.

Economic Implications of the programme:

7. What the Board has proposed is that the entire difference between the price of Ambar yarn and the price of ordinary reeled mill yarn should be subsidized by Government. They have also recommended that the Ambar Charkha should be supplied on a subsidised basis—50 per cent. of the cost being given as an outright grant to the spinner. In addition, they have asked for a subsidy of 4 annas in a rupee on all retail sales of "Khadi" produced with Ambar yarn, so as to cover the major portion of the difference between the prices of Ambar Khadi and mill cloth of comparable counts. Apart from the above detailed direct expenditure, the Board also requires loans towards working capital.

8. *Cost of Production of yarn.*—The assumptions on which the production cost of Ambar yarn is worked by the Board are:

- (1) a wage rate of As. 0-12-0 a day to the spinner, calculated on the basis of the assumed daily production of 8 hanks. In other words, a spinner is to be paid a piece rate of As. 1½ per hank of yarn or annas 0-12-0 for 8 hanks;
- (2) raw cotton at Rs. 700 per candy for 20 counts at Rs. 600 per candy, for 16 counts;
- (3) a margin of about 12½ per cent. to 13 per cent. for wastage; and
- (4) handling charges at 6½ per cent. of the cost.

The following table shows the estimated prices of Ambar yarn per lb. of 16's, 18's and 20's:—

	Rs. A. P.	Rs. A. P.	Rs. A. P.
1. Raw Cotton	0 12 3	0 14 2	0 14 2
2. Wastage	0 1 7	0 1 9	0 1 9
3. Spinning wages	1 8 0	1 11 0	1 14 0
Cost per lb. of yarn	2 5 10	2 10 11	2 13 11
(6½% of cost, for handling charges)	0 2 5	0 2 8	0 2 10
Price per lb.	2 8 3	2 13 7	3 0 9

The comparative prices of Ambar yarn and mill yarn of 16's, 18's and 20's are as follows:—

Counts	Ambar	Mill	Difference%
16's	2 8 3	1 8 0	67·71
18's	2 13 7	1 9 6	78·76
20's	3 0 9	1 10 6	83·96

9. *Subsidy on the production and distribution of yarn.*—Since the Board's programme envisages production of yarn in the range of 16's to 20's or on an average of 18's, the average difference between the prices of Ambar and mill yarn would be Rs. 1-4-0. In the rural areas, this difference is expected to be reduced to Re. 1-1-0, since transport and other charges on mill yarn would increase. In order to make it worthwhile for the handloom weaver to use Ambar yarn, it will, according to the Khadi Board, be necessary for Government to subsidise the entire difference in price. Since the total yarn that will be available for distribution to handloom weavers is calculated at 660 million lbs., the total amount of subsidy required on this score, at the rate of the maximum of Re. 1-4-0 per lb. would be Rs. 82·5 crores for the whole period of the Second Plan.

10. *Subsidy on the production and distribution of Ambar charkhas.*—For 25 lakh Ambar charkhas at the rate of Rs. 100 per charkha the subsidy at 50 per cent. of the cost comes to Rs. 12·5 crores. (Since, however, the cost of the improved model is Rs. 130, the subsidy on the distribution of Ambar charkhas would rise from Rs. 12·5 crores to Rs. 16·25 crores).

11. *Subsidy on Ambar Khadi.*—For traditional Khadi, the cost of which is about double that of Ambar Khadi, Government are already giving a rebate of 3 annas in the rupee on retail sales and a subsidy of 1 anna in the rupee as a bonus on increased production and sales. The Board's proposal is to continue to obtain a total subsidy of 4 annas in the rupee on Ambar Khadi so as to bring down its cost very close to the level of comparable mill cloth. The Board has estimated a total output of 975 million yards of Ambar Khadi during the Second Plan. The cost of production of Ambar Khadi has been assumed by the Board at an average of Re. 1-2-0 per yard. The total subsidy required for selling Ambar Khadi would, therefore, come to Rs. 27·4 crores during the period of the Second Plan.

12. *Loans*.—According to the Board, working capital will be required for running *Saranjam* centres, for stocking cotton, for maintaining yarn stocks and for the production and sale of cloth. The total loan requirements for the five year period are estimated to be Rs. 62·4 crores.

13. *Miscellaneous items*.—A sum of Rs. 1·01 crores is required for *Saranjam*, Rs. 3·4 crores for production and finishing centres, Rs. 1 crore for organisation and research and Rs. 16·16 crores for the training programme.

The total cost of the programme for the period of the Second Plan is, therefore, as follows:

(In crores of rupees)

1. Distribution of Ambar charkhas	16·25
2. Subsidy on yarn	82·50
3. Subsidy on manufacture of Ambar Khadi	27·42
4. Training programme	16·16
5. Production and finishing centres	3·40
6. <i>Saranjam</i> centres	1·01
7. Organisation and research	1·00
Total	147·74
Loan	62·40
GRAND TOTAL	210·14

Organizational arrangements:

14. On the organisational side, the Board envisages the establishment of 300 *Saranjam* centres for the manufacture of charkhas. It may even consider the manufacture of the precision parts in already established engineering units and factories in different parts of the country. 35 *Vidyalayas* for training instructors and 1,950 *Parishramalayas* for training spinners are also proposed to be established. In addition, the Board proposes to establish in each year of the Plan, 60 main production centres and 120 new sub-production centres for the actual spinning of yarn. Some of the existing 500 centres, previously affiliated to the All India Spinners' Association, will also be utilised for the programme. Other organisations like the Kasturba Trust, Gandhi Smarak Nidhi and the Sarva Seva Sangh will also be utilised for implementing the programme.

Employment and social benefits.

15. According to the estimates of the Khadi Board, the implementation of the programme is likely to provide gainful employment to 50 lakhs spinners (part time and full time) or in terms of full employment to 36 lakhs spinners, in the manufacture of Ambar yarn. 8·33 lakh weavers and 4·17 lakh weavers' assistants will also find employment in the manufacture of cloth. In the manufacture of Ambar Charkha sets, the programme is likely to provide employment to 12,780 carpenters. Besides, this, a number of managerial, technical and clerical jobs will be created. The Board has estimated that the additional employment created would involve payment of Rs. 296·77 crores by way of wages.

16. According to the Board, the greatest contribution that its programme will make is the political, social and moral uplift of the country, as a whole, through so large a number of persons finding gainful full time employment in relatively healthier rural surroundings.

NOTE:—On the eve of the Committee's Session in Delhi, between 21st and 23rd May, 1956, the All India Khadi and Village Industries Board forwarded, in response to the Committee's questionnaire on economic aspects, tentative revised figures regarding total production of Ambar Khadi and the subsidy required on the marketable surplus. In the meeting of the Board held in Cangeevaram, the Ambar Programme was revised. The relevant letters are reproduced below.

II

LETTER NO. ECR/A.C./56, DATED THE 18TH MAY 1956, FROM THE KHADI BOARD REFERRED TO IN THE NOTE.

SUBJECT:—*Questionnaire on the economic aspects of the Ambar Charkha.*

Dear Smt. Johari,

Will you please refer to your circular letters No. 4-A.C.C./56 (B), dated May 1 and May 10, 1956? I am to furnish replies to the questions posed in these letters as follows:—

A(1) *Raw material*.—The average price of raw cotton for the manufacture of yarn of 16's should be Rs. 600 per candy and of 20's Rs. 700 per candy. These are, however, the barest minimum today as price fluctuations during the last few months have been very wide.

(2) The Board is of the view that a daily wage of 12 annas to the spinner is reasonable. Though the all-India average agricultural wage varies from occupation to occupation and ranges between 14 annas to Re. 1-2-0 per day, work available to agricultural labour over the major portion of countryside is only for a very limited period. Consequently, if it is spread over the entire year of 300 days, the all-India average wage, computed by the Agricultural Labour Enquiry Committee, will be seen to be lower than the wage proposed by the Board for the spinner on the Ambar Charkha.

(3) *Overheads*.—The overhead charges on the present traditional Khadi are computed at 18½ per cent.; these are inclusive of establishment, transport, insurance etc. In the Ambar Charkha scheme, the Board expects a progressive reduction in the overhead costs from the present 18½ per cent. to 12½ per cent. By what stages this reduction will be effected and by how much are points that cannot now be indicated.

(4) *Handling charges*.—(i) The Board contemplates a thorough revision of its earlier Ambar Charkha Programme and directly undertaking the manufacture of cloth from yarn produced on the Ambar Charkha. The question of handling charges or its appropriate percentage of total costs may not, therefore, arise.

(ii) Does not arise.

(5) *Wastage*.—The Board's Ambar Charkha Programme allows for 12½ per cent. of the cost of raw cotton for wastage. The details set out in the enclosed table, show the wide variations in the percentage of wastage of raw cotton in carding, silvering and spinning. The

Board considers 12½ per cent. allowance, on a national average, for calculating the price of yarn as reasonable.

B. In view of the answer to question A(4), these questions do not arise.

Subsidy.—A firm answer to the additional question forwarded with your letter No. 4-A.C.C./56 of May 10, cannot be given till after the Board's meeting at Canjeevaram. The figures furnished below are tentative. As several months of the first year of the Plan period have elapsed without any preparation for the implementation of the Board's Ambar Charkha Programme and only four effective years are available, the progression in production may have to be revised as shown in the table below. The Board believes that 25 per cent. of the annual output of cloth with Ambar yarn may be consumed by the spinners, weavers and their respective families. Consequently, only 75 per cent. of the annual output of cloth may have to be marketed either locally, regionally or through special shops. The subsidy on cloth is calculated at the rate of 4 annas in the rupee, and the cost per yard of cloth is the same as in the Board's latest Ambar Charkha Programme. The subsidy at 4 annas in the rupee represents the payment of an additional subsidy of 2 annas in the rupee, as all handloom cloth today enjoys a 2 anna rebate in the rupee.

Yours sincerely,
(Sd.) J. D. Sundram.

Smt. P. Johari,
Dy. Secretary to the Govt. of India,
Ministry of Production, Thappar House,
New Delhi.

REGION-WISE ANALYSIS OF WASTAGE

Region	Quality of cotton supplied	Count range	Percentage of wastage
I		3	4
1. Bengal	Jarilla	15—20	11·08
2. Andhra	Red cotton	9—20	13·53
3. Karnatak	Jaydhar	12—20	18·50
4. Maharashtra	197/3	13—20	12·07
5. Kerala	Jarill and Karanganni	11—20	11·63
6. Tamil Nad	Ukkanta and Karanganni	13—24	9·80
7. Utkal	Jarilla	12—20	21·68
8. U. P. . . .	Jarilla	14—16	7·45
9. Punjab	Surti	12—18	15·99
10. Bihar	Navsari	12—25	11·66
11. Madhya Bharat	197/3	13—16	6·19
12. Hyderabad	Navsari	12—30	6·31
13. Saurashtra	Vijay	11—20	14·60

Source : Data on Spinning Competitions on the Ambar Charkha conducted at the various Parishrmalayas after April 13, 1956.

Tentative Estimates of Production of Ambar Khadi

Items	Unit	1956-57	1957-58	1958-59	1959-60	1960-61	Total
	Mn.Yds.						
1. Production of Khadi	"	25	175	500	800	1,000	2,500
2. Vastraswavalamban at 25 per cent.	"	6.25	43.75	125	200	250	625.00
3. Marketable surplus	"	18.75	131.25	375	600	750	1875.00
4. Value of cloth at Re. 1-2-0 per yard.	Rs. crores	2.11	14.77	42.19	67.50	84.38	210.95
5. Subsidy at -/4/- in the rupee	"	0.53	3.69	10.55	16.88	21.09	52.74

III

**GOVERNMENT OF INDIA
MINISTRY OF PRODUCTION**

All India Khadi and Village Industries Board

No. ECR/AC

101, Queen's Road
Bombay 1: 1-6-1956.

My dear Shree Reddy,

In the original Five-Year Plan submitted by the Board last year to the Planning Commission through your Ministry, the Board had put forward a programme for the supply of yarn turned out on the Ambar Charkha to the handloom weaving industry. In view of the decision of the Akhil Bharat Sarva Seva Sangh to treat as Khadi cloth woven with Ambar Charkha yarn, the Board at its last meeting has decided to make itself responsible, under the scheme, not for the supply of yarn but for the production and supply of Khadi cloth. This is also in consonance with the views expressed at a meeting of representatives of Khadi organizations held at Ahmedabad early in April.

This decision will slightly affect the scheme of expenditure submitted by the Board for the programme for 1956-57. It alters also the basis and quantum of the subsidy that is claimed under the scheme. I enclose herewith a brief note clearly setting forth the modifications that are necessary.

Yours sincerely,
(Sd.) V. L. MEHTA,

Enclos. as above.

Shree K. C. Reddy,
Minister for Production,
Government of India,
New Delhi.

Change in the Board's Ambar Charkha Programme

In pursuance of the decision of the Akhil Bharat Sarva Seva Sangh to treat as Khadi cloth woven from Ambar yarn and the resolution of the Khadi Workers at their meeting in Ahmedabad, the Board, at its meeting in Canjeevaram, decided to undertake directly the responsibility for the manufacture of cloth from all the yarn turned out on the Ambar Charkha instead of distributing it to the handlooms as envisaged in its earlier programme.

The Board's decision to revise its earlier Ambar Charkha programme implies:

- (i) the manufacture and consumption of all yarn turned out on the Ambar Charkha for the production of Khadi;
- (ii) payment of a subsidy at 4 as. in the rupee at a single point, viz., at the production-stage in the case of vastra swavalamban and at the retail stage in the case of marketable surplus, instead of at two points in the earlier programme viz., at the point of distribution of yarn to the handlooms and at the retail sales point.

The revision of the earlier programme very materially alters the proportion of subsidy to the wages paid. In the earlier programme, the distribution of Ambar yarn to the handlooms through the Handloom Board envisaged the payment of a subsidy on Ambar yarn at about Re. 1-1-0 per lb. to equalize the prices of Ambar and mill yarn. The Handloom Board pays a subsidy of Re. 0-1-6 per rupee on the whole sale and/or retail sales of handloom cloth through recognized co-operative societies. At an average of 4 yards of cloth to a pound of yarn, this would have meant the payment of a total subsidy of 5½ annas per yard of cloth woven from Ambar yarn by the handlooms covered by the Handloom Board as against 4½ annas per yard on the cloth manufactured by the Board's production centres. The Board's decision to undertake directly the responsibility for the manufacture of cloth obviates this anomalous position, and substantially reduces the subsidy element in the wages per yard of cloth as shown below:—

Price per square yard of Ambar cloth of 16's

	Rs. As. Ps.		
1. Raw Cotton	0	3	1
2. Wastage @ 12½%	0	0	5
3. Spinning wages @ 1½ as. per hank & 4 hanks per yard	0	6	0
4. Weaving wages per yd. @ 4 as. a yd.	0	4	0
5. Total cost	0	13	6
6. Overheads at 12½% of cost	0	1	8
7. Total price	0	15	2
8. Subsidy @ As. in the rupee	0	3	10
9. Retail Price	0	11	4

The table above brings out clearly that of the total cost of production of one yard of Khadi, 10 annas are the wages (spinning 6 annas and weaving 4 annas) and the balance the cost of raw materials and overhead expenses. The subsidy of Re. 0-3-10 constitutes 38 per cent. of the wage-cost per yard of cloth.

The Board is not in a position to indicate the size of its programme during the Second Plan period as the decision of the Government and the Planning Commission is yet to be known. The broad details outlined above are merely to emphasize the basic changes that have been made in its programme.





सत्यमेव जयते

**Questionnaire issued by the Committee on the technical aspects of
the Ambar Charkha.**





सत्यमेव जयते

APPENDIX II

QUESTIONNAIRE ISSUED BY THE COMMITTEE ON THE TECHNICAL ASPECTS OF THE AMBAR CHARKHA

QUESTIONNAIRE

(A) *The Charkha Set*

1. For what period of time have you been experimenting with the Ambar Charkha?

2. Do you consider the Charkha set a technically sound implement?

3. Is the mechanism simple or complicated?

4. Is it easy to operate?

5. Is it capable of easy repair and replacement of parts that might become worn out?

6. Is there any scope for immediate adjustment in the Charkha set, so as to make it a more effective instrument of production?

7. Whether the different tools or machine comprising the Ambar Charkha set are capable of being worked with hand?

8. Can the existing Ambar Charkha be easily adapted for being worked with electricity?

9. Some of the parts of Ambar Charkha which are in the nature of precision parts—can these be manufactured by ordinary carpenters? Should they be manufactured in several centres or in one or more mechanised workshops, in order to maintain uniformity?

10. What experiments have been conducted by you with the Ambar Charkha (*Please give full details*)?

(B) *Quantitative Production*

1. How many hanks of yarn can an average adult produce in 8 hours of effective work, if work is done from carding to spinning as also if work is limited to spinning only.

2. At what period of time, during an eight-hour-day, would the spinner show signs of fatigue which might lower his production capacity?

3. What intervals of rest would be necessary and at what frequency, to ensure that a spinner is able to maintain a production rate of 8 hanks of yarn in a day of 8 effective working hours?

4. Given the required intervals of rest, would an average adult be able to continuously produce 8 hanks of yarn per eight-hour-day if he works on the Charkha for months together taking into account fatigue, psychological and other factors?

5. What is the period of training that an average adult would require to enable him to produce 8 hanks of yarn in a day of 8 effective working hours?

6. Would the spinner require any further training by way of refresher course? If so, for what period?

(C) Quality of Cotton

1. Have the experiments in your institution been conducted with high grade cotton or varying grades of cotton?

2. What counts of yarn are produced with varying grades of cotton?

3. What is the out-put of yarn, if average qualities cotton which are available in bulk, are used by the spinner?

4. Is it necessary to fix any particular variety of cotton for producing different counts of yarn?

(D) Qualitative Production

1. Is the yarn produced, clean and smooth?

2. What are the count variations, in a unit of one hank of yarn?

3. What is the tensile strength of the yarn?

4. Is the yarn produced, capable of passing through the reeds, during weaving, without many breakages, because of the variations in the counts?

5. What should be the maximum count variation, in order to reduce breakages to the minimum?

6. Whether the Ambar Charkha set is capable of producing yarn of course, medium and fine counts?

7. What adjustments, if any, are required for producing yarn of different counts?

8. What actual count-ranges, is the Ambar Charkha set capable of producing? For example 6's to 18's, 18's to 32's, 32's to 48's etc.

9. How does the strength and count variation of Ambar yarn compare with the average reeled yarn of identical counts?

10. What is the variation in tensile strength of yarn produced?

11. What are the turns per inch put in and the variation of such turns per inch in the yarn?

12. What is the evenness of the yarn produced?

13. How does the Ambar Charkha yarn compare with mill (reel-ed) yarn of identical count in regard to evenness of the yarn spun, its cleanliness, neppiness, variation in the tensile strength, regularity of the flow of twist and other relevant matters?

(E) Weaving

1. Is the yarn of sufficient strength, to eliminate difficulty in sizing and weaving?

2. Whether it is capable of being woven, more or less, as easily as the average reeled yarn available to handloom weavers.

3. In the background of the weaving-tests conducted in your institution and in the background of the quality of yarn produced by the Ambar Charkha, what textures of cloth, of specified reeds and picks would you consider capable of being woven by handloom weavers?

(F) *Wastage*

1. What is the percentage of wastage in spinning?

2. How does this compare with wastage in producing mill-yarn of identical counts?

3. What is the percentage of wastage in weaving?

4. How does this compare with wastage in weaving with reeled yarn?

(G) *Miscellaneous*

1. *What are the re-actions of the Ambar yarn to bleaching and dyeing and how these compare with the re-actions of mill (reeled) yarn to similar processes?*

NOTE.—The questions in italics were added in pursuance of the decisions taken by the Committee at the first meeting—held on 13th March, 1956.





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APPENDIX III

**Questionnaire issued by the Committee on the economic aspects of
the Ambar Charkha.**





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APPENDIX III

QUESTIONNAIRE ISSUED BY THE COMMITTEE ON THE ECONOMIC ASPECTS OF THE AMBAR CHARKHA

(A) Cost of production of yarn

(1) *Raw material*.—Assuming that Ambar yarn in a range of 16 to 20 counts is to be produced, with indigenously grown cotton, what is the average price of cotton per candy that should be taken for purposes of calculating cost of production of yarn?

(2) *Wage*.—Keeping in mind the conditions of work and the average prevailing agricultural wage, what would you consider a reasonable wage for the spinner, per 8 hour day?

(3) *Overheads*.—What percentage of the total cost of production should be added for overhead charges?

(4) *Handling*.—(i) Do you consider that a separate percentage to meet handling charges should be included, in addition to the overheads?

(ii) If so, what should be the percentage?

(5) *Wastage*.—What in your view is the percentage of cost that should be added on account of wastage?

(B) Subsidy on distribution of yarn

(1) In the background of the replies you give to questions under group (A), what would be the approximate total cost of production per lb. of yarn?

(2) What is the difference between this and the cost of ordinary reeled yarn between the ranges of 16's and 20's?

(3) What percentage of the difference should be subsidized by Government, in order to make Ambar yarn competitive?

(4) In order to make Ambar yarn competitive, *vis-a-vis* mill yarn of comparable counts, would you recommend an outright subsidy, or would you consider the placing of a ban on production by mills, below a certain count range, say for example 16's to 20's?

(5) If the latter alternative under question (B) (4) is preferred, please state your reasons for and against the creation of the inevitable monopoly and its consequences on the ultimate consumer of cloth.

(C) *Subsidy on the distribution of Ambar Charkha

(1) What is your estimate of the cost of production of your model of the Ambar Charkha?

(2) Should the Charkha be supplied to the spinners at a subsidized rate?

*Addressed only to A.T.I.R.A. and Messrs Sunder Saw Mills, Bombay.



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APPENDIX IV

I

THE AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION NAVRANGPURA, AHMEDABAD-9.

REPLIES TO THE AMBAR CHARKHA QUESTIONNAIRE FROM THE MINISTRY OF PRODUCTION

Questionnaire

(A) The Charkha set

Question 1.—For what period of time have you been experimenting with the Ambar Charkha?

Answer—7 Months, from September, 1955—March, 1956.

The period may be divided as follows:

- (a) 3 Months: preliminary experiments with one Charkha, Spinning Surti Cotton to 18's and 24's and Vijaya to 30's counts. The results indicated large variations in the count, strength and evenness of the yarn spun. (Interim Summary Report Appendix A & B, March 2 1956.)
- (b) 1½ Months: Study and improvements in machines and processes. Stabilisation of final operating conditions. (Interim Summary Report Appendix A and B, March 2, 1956).
- (c) 1½ Months: Spinning 20's and 12's count yarn from the Vijaya and the Wagad varieties of cotton respectively, in designed experiments with five sets of machines each set consisting of one Ambar Belani and one Ambar Charkha. Weaving these yarns on a handloom.

Question 2.—Do you consider the Charkha set a technically sound implement?

Answer.— With the machines and the set modified as described in the Interim Summary Report we have been able to spin 12's and 20's count yarns from cotton without difficulty. In the design of the machines no basic principle of spinning has been contravened.

Question 3.—Is the mechanism simple or complicated?

Answer.—Operators with ordinary intelligence may be able to pick up the technique after an adequate amount of basic training.

Question 4.—Is it easy to operate?

Answer.—As above.

Question 5.—Is it capable of easy repair and replacement of parts that might become worn out?

Answer.—Yes, provided a trained person and replacement parts are easily available.

Question 6.—Is there any scope for immediate adjustment in the Charkha set, so as to make it a more effective instrument of production?

Answer.—Possible.

Question 7.—Whether the different tools or machine comprising the Ambar Charkha set are capable of being worked with hand?

Answer.—Yes; have been operated by hand without any adverse effect.

Question 8.—Can the existing Ambar Charkha be easily adapted for being worked with electricity?

Answer.—Special experiments will have to be designed and carried out to test this point.

Question 9.—Some of the parts of Ambar Charkha which are in the nature of precision parts—can these be manufactured by ordinary carpenters? Should they be manufactured in several centres or in one or more mechanised workshops, in order to maintain uniformity?

Answer.—It is essential that all precision wooden and metal parts are produced to standard specifications, by trained persons and in places recognised for the purpose.

Question 10.—What experiments have been conducted by you with the Ambar Charkha (Please give full details).

Answer.—Included in our Reply (A). 1 to the original questionnaire.

(B) Quantitative Production.

Question 1.—How many hanks of yarn can an average adult produce in 8 hours of effective work, if work is done from carding to spinning as also if work is limited to spinning only.

Answer.—Our present figures based on 12 days production by young trained workers for 20's count yarn (from baled Vijaya Cotton), for 8 hours effective work are:

Worker No.	Process 1, 2 and 3 Carding to Spinning			Process 3 only Spinning only			Remarks
	Min.-Hank	Max. Hank	Av. Hank	Min. Hank	Max. Hank	Av. Hank	
1 . .	4.2	9.2	5.9	11.4	35.6	17.4	Process 1: Opening & cleaning (On Dhunai Mo-dhia)

1	2	3	4	5	6	7	8
2 . .	3.3	7.4	4.9	7.5	21.3	13.4	Process 2: Drawing to Roving (On Be- lani)
3 . .	4.0	10.8	5.6	13.6	43.2	20.5	Process 3: Spinning (On Am- bar Char- kha)
4 . .	4.0	8.7	5.4	14.0	38.1	18.8	
5 . .	4.9	8.3	6.2	15.4	36.4	24.2	

No continuous production over an extended period of time and on one and the same cotton has been carried out for the present, because during this investigation the main emphasis was laid on quality rather than on the quantity.

Question 2.—At what period of time, during an eight-hour-day, would the spinner show signs of fatigue which might lower his production capacity?

Answer.—So far our experiments have not been conducted to study the fatigue aspect, specially; however, during the present programme of work, with due intervals of rest, the workers did not show any signs of abnormal fatigues.

Question 3.—What intervals of rest would be necessary and at what frequency, to ensure that a spinner is able to maintain a production rate of 8 hanks of yarn in a day of 8 effective working hours?

Answer.—At A.T.I.R.A. the worker's time is usually 9-00 A.M. to 5-00 P.M. (8 hours) with a recess period from 1-00 P.M. to 2-00 P.M. Generally the workers have short intervals (about 10 minutes) of either rest or some very light work, on the average every two hours during the total daily working time. The time and job analysis of the five workers engaged at A.T.I.R.A. work out as follows for 12 days production of 20's yarn at 7½ daily working.

Worker	Percent Time on Belani			Percent Time on Charkha			Percent Time rest
	Process	Adjust- ment and main- tenance	Misc.	Process	Adjust- ment and main- tenance	Misc.	
1*							
2 . .	40.2	4.0	3.2	21.5	4.6	7.0	19.5
3 . .	50.5	2.5	5.7	16.5	1.0	6.7	17.1
4 . .	44.2	4.4	3.8	20.1	3.1	6.1	18.3
5 . .	41.9	1.7	6.3	19.5	1.9	8.1	20.6
Average	44.2	3.1	4.8	19.4	2.6	7.0	18.9

*Worker 1 was assigned supervision duties.

Question 4.—Given the required intervals of rest, would an average adult be able to continuously produce 8 hanks of yarn per eight-hour day if he works on the Charkha for months together taking into account fatigue, psychological and other factors?

Answer.—Only long term field experiments with no change during the period in the cotton or counts of yarn spun, could decide this point.

Question 5.—What is the period of training that an average adult would require to enable him to produce 8 hanks of yarn in a day of 8 effective working hours?

Answer.—Not known since most of the workers at A.T.I.R.A. had a preliminary training in the Ambar Charkha Spinning.

Question 6.—Would the spinner require any further training by way of refresher course? If so, for what period?

Answer.—Yes, it would be helpful, for a period of at least 2 weeks.

(C) *Quality of Cotton.*

Question 1.—Have the experiments in your institution been conducted with high grade cotton or varying grades of cotton?

Answer.—We have worked with the trade varieties:

(a) *Vijaya* and (b) *Wagad*.

Question 2.—What counts of yarn are produced with varying grades of cotton?

Answer.—We have spun:—

12's count yarn from *Wagad* cotton—and 20's from *Vijaya*.

Question 3.—What is the out-put of yarn, if average qualities cotton which are available in bulk, are used by the spinner?

Answer.—Figures given in Reply (B) 1.

Question 4.—Is it necessary to fix any particular variety of cotton for producing different counts of yarn?

Answer.—Yes.

(D) *Qualitative Production*

Question 1.—Is the yarn produced, clean and smooth?

Answer.—Appearance pictures and evenness records of 20's yarn indicate a fairly clear and smooth material.

Question 2.—What are the count variations, in a unit of one hank of yarn?

Answer.—The Coefficient of Variation for the 20's count *Vijaya* yarn spun at A.T.I.R.A. showed a value of 7 per cent. (in terms of percentage standard deviation of the mean.)

Question 3.—What is the tensile strength of the yarn?

Answer.—For the same yarn the average Lea strength noted was 84.6 lbs. for an average count of 19.6.

Question 4.—Is the yarn produced, capable of passing through the reeds, during weaving, without many breakages, because of the variations in the counts?

Answer.—The yarn was found to pass through the reeds during weaving without many breakages.

Question 5.—What should be the maximum count variation, in order to reduce breakages to the minimum?

Answer.—With the variations mentioned above the yarn does not have more than the normal number of breakages.

Question 6.—Whether the Ambar Charkha set is capable of producing yarn of coarse, medium and fine counts?

Answer.—So far our experience is confined to yarns of 20's and 12's counts only.

Question 7.—What adjustments, if any, are required for producing yarn of different counts?

Answer.—The necessary adjustments have been indicated in the Interim Report and in the Charkha Machine Drawings.

Question 8.—What actual count-ranges, is the Ambar Charkha set capable of producing? For example, 6's to 18's, 18's to 32's, 32's to 48's etc.

Answer.—Reply (D) 6.

Question 9.—How does the strength and count Variation of Ambar yarn compare with the average reeled yarn of identical counts?

Answer.—These tests have now been reported in the supplement.

Question 10.—What is the variation in tensile strength of yarn produced?

Answer.—The Coefficient of Variation for the lea tensile strength for the tests made, was 12·6, in terms of percentage Standard deviation of the mean. (Vide Interim Summary Report Appendix B, Table II).

Question 11.—What are the turns per inch put in and the variation of such turns per inch in the yarn?

Answer.—Turns per inch on the Ambar Yarn as spun on five Charkhas and their variations (Coefficient of Variation) are shown in the Table below:

Yarn	No. of tests	Average Turns/ inch.	Coefficient variation in Turns/ inch.
Charkha I	34	21·1	22·18
Charkha II	45	18·8	18·60
Charkha III	45	18·9	25·18
Charkha IV	45	19·3	20·72
Charkha V	45	18·6	16·86

Question 12.—What is the evenness of the yarn produced?

Answer.—Unevenness figures for the five samples of Ambar Yarn as determined on a Fielden Walker Instrument are shown in the Table below:—

Yarn	No. of tests	Percent mean deviation from Normal	
		At Low Speed	At High Speed
Charkha I	30	14.70	16.47
Charkha II	31	14.38	16.30
Charkha III	31	15.21	16.24
Charkha IV	31	14.30	16.21
Charkha V	38	14.24	16.70

Question 13.—How does the Ambar Charkha yarn compare with mill (reeled) yarn of identical count in regard to evenness of the yarn spun, its cleanliness, neppiness, variation in the tensile strength, regularity of the flow of twist and other relevant matters?

Answer.—Comparative figures for the 20's Ambar Yarns and one sample of Mill Reeling yarn of the corresponding count purchased locally are shown in the table below. Other samples of 20's mill reeling yarns supplied by the Textile Commissioner's Office, Ahmedabad, proved to be inferior. Details of all the tests will be given in the full report for the 20's yarn, which is under preparation.

Yarn Property	Ambar Yarn *	Reeling Yarn **
(1) Unevenness		
(a) Low Speed	14.56	14.13
(b) High Speed	16.38	15.90
(2) Variation in Strength (Coefficient of Variation)	12.60	11.23
(3) Twist regularity (Coefficient of variation)	20.71	18.83
(4) Cleanliness and neppiness	Compar- able to reeling yarn	..

*Average of yarns produced on five Charks.

**Sample purchased locally.

(E) Weaving

Question 1.—Is the yarn of sufficient strength, to eliminate difficulty in sizing and weaving?

Answer.—The 20's and 12's yarns have caused no special difficulty.

Question 2.—Whether it is capable of being woven, more or less, as easily as the average reeled yarn available to handloom weavers.

Answer.—Yes.

Question 3.—In the background of the weaving-tests conducted in your institution and in the background of the quality of yarn produced by the Ambar Charkha, what textures of cloth, of specified reeds and picks, would you consider capable of being woven by handloom weavers?

Answer.—The cloth produced at A.T.I.R.A. from 20's yarn has 46/46 Reeds & Picks per inch. Our experience at present is restricted to this texture only. Cloth tests are still to be completed.

(F) Wastage

Question 1.—What is the percentage of wastage in spinning?

Answer.—With the Vijaya Cotton used for Spinning 20's count yarn, the average total waste, most of which was taken out at Dhunai Modhia and Belani, worked out as 13.1 percent. A part of this waste is avoided after good practice, under favourable conditions.

Question 2.—How does this compare with wastage in producing mill-yarn of identical counts?

Answer.—Compares well.

Question 3.—What is the percentage of wastage in weaving?

Question 4.—How does this compare with wastage in weaving with reeled yarn?

Answers 3 & 4.—Warping and Weft filling waste figures obtained for the 20's count Ambar and Reeling yarns in two sets of experiments for a handloom installed at A.T.I.R.A. are:—

Warping and Weft Filling Waste Percentage.

Yarn	Set I	Set II
20's Ambar Yarn	0.75	0.59
20's Reeling Yarn	0.78	0.80

As the number of observations are very limited no significance can be attached to the differences observed between the Ambar and the Reeling Yarns. Figures are not available for any wastage made during the actual weaving operation on the handloom.

(G) Miscellaneous

Question 1.—What are the reactions of the Ambar yarn to bleaching and dyeing and how these compare with the reactions of mill (reeled) yarn to similar processes?

Answer.—So far no work has been done on bleaching and dyeing of the Ambar yarn or the cloth made from it at A.T.I.R.A. There is no reason, however, to believe that any difference between the Ambar yarn and the reeled mill yarn in this respect would be noticed.

II

REPLIES GIVEN BY THE DIRECTOR, TECHNOLOGICAL LABORATORY, INDIAN CENTRAL COTTON COMMITTEE, BOMBAY, TO THE QUESTIONNAIRE ISSUED BY THE AMBAR-CHARKHA COMMITTEE.

Replies to Questionnaire.(A) *The Charkha set.*

Q. 1.—For what period of time have you been experimenting with the Ambar Charkha?

Ans.—Experiments on Ambar Charkha were carried on for four months at the Technological Laboratory, Matunga. Preliminary experiments had, however, commenced two months earlier.

Q. 2.—Do you consider the Charkha set a technically sound implement?

Q. 3.—Is the mechanism simple or complicated?

Q. 4.—Is it easy to operate?

Ans. to Q. 2, Q. 3. and Q. 4.—The Ambar Charkha consists of (i) *Dhunai Modhia*, (ii) *Ambar Belni* (sliver preparer) and (iii) *Ambar Charkha* (a simplified ring frame with 4 spindles). The first two devices are meant to clean the cotton and prepare a suitable roving for feeding the *Ambar Charkha*. Although these have been devised to be as simple as possible, further improvements seem necessary. For example, *Dhunai Modhia* ruptures the fibres, as the experiments at the Laboratory have shown; it should therefore, be modified or discarded. The *Ambar Belni* (sliver preparer) is a useful device, but it is here that the foundations for the irregularity or unevenness of yarn are laid. In the present processing, the lap is made by hand, the pattas are crimped, i.e. 16 to 32 feet are compressed in the palm of the left hand to a few inches, and then spread out again for doubling and further passages through the *Belni*. The spring and string-weighting on the two pairs of rollers are likely to produce slippage or stickiness of the sliver; the insertion of the roving twist appears to be somewhat irregular. Preparation of fairly even roving is almost an art depending to some extent on the personal skill of the operator. The present model of the *Ambar Charkha* (ring frame with 4 spindles), which does the actual spinning, has no smooth movement of its parts; this has to be improved by redesigning the various parts and minimising friction, wherever possible.

Q. 5.—Is it capable of easy repair and replacement of parts that might become worn out?

Ans.—Yes; with some training.

Q. 6.—Is there any scope for immediate adjustment in the Charkha set, so as to make it a more effective instrument of production?

Ans.—It might be possible to make it a more effective instrument of production, if the set is re-designed; but no definite answer can be given unless experiments are conducted in this direction.

Q. 7.—Whether the different tools or machines comprising the Ambar Charkha set are capable of being worked with hand?

Ans.—Yes.

Q. 8.—Can the existing Ambar Charkha be easily adapted for being worked with electricity?

Ans.—Yes; with changes in the mechanical equipment, it might be possible.

Q. 9.—Some of the parts of Ambar Charkha which are in the nature of precision parts—can these be manufactured by ordinary carpenters? Should they be manufactured in several centres or in one or more mechanised workshops, in order to maintain uniformity?

Ans.—The precision parts of this unit are mostly made of iron, an ordinary carpenter can possibly make the wooden parts. The precision parts should preferably be manufactured at a central mechanised workshop where highly-skilled technicians are available.

(B) *Quantitative Production.*

Question 1.—How many hanks of yarn can an average adult produce in 8 hours of effective work?

Ans.—It all depends whether an adult is engaged on spinning on the Ambar Charkha (ring frame) alone or he should attend to the preparatory processes as well; further, it also depends on the counts spun and the quality of the cotton used. In the investigation carried out at the Laboratory, clean lint belonging to the Standard Indian Cottons, grown at the Government Experimental Stations situated at various places in the Indian Union was taken, because the Laboratory results for these cottons were available for comparative purposes. These cottons were not pressed into a bale. If, however, commercial baled cottons which are available in the market are taken, the amount of dirt and trash would, in all probability, be more since carding in the Ambar unit cannot be so good as it would be in a mill, and more leaf-bits, seed-coat bits, etc. might be present in the Charkha roving. This would produce more end-breakages in spinning and lower the production of yarn to some

extent. The results obtained in the experiments carried out at the Laboratory are given below:—

Average production of yarn in hanks for 8 hours with 4 spindles.

	10s	14s	20s	30s	40s	50
(a) Charkha alone. .	14'0	12'4	16'4	12'0	17'2	12'4
(b) Based on total time taken upto spindle point including preparatory processes, but <i>excluding</i> time taken for repairs and changes for counts, cotton, etc. .	3'6	4'2	5'2	4'4	4'4	4'0
(c) Based on total time taken including preparatory processes, spinning and reeling, but <i>excluding</i> time taken for repairs and changes for counts, cotton, etc. .	3'2	3'8	4'4	4'0	4'0	3'6
(d) Based on total time <i>including</i> time taken for preparatory processes and also <i>including</i> time taken for repairs and changes for counts, cotton, etc. .	2'3	3'0	4'0	3'1	3'2	3'1

Regarding item (d), it may be remarked that this item is given because repairs and changes for counts, cotton, etc. might be considered as necessary work, which would not occur in the normal working of the Charkha.

Question 2.—At what period of time, during an eight-hour-day, would the spinner show signs of fatigue which might lower his production capacity?

Answer.—If an adult is working on the Ambar Charkha alone, it is likely he might show signs of fatigue after two hours.

Question 3.—What intervals or rest would be necessary and at what frequency, to ensure that a spinner is able to maintain a production rate of 8 hanks of yarn in a day of 8 effective working hours?

Answer.—It has not been possible even for an expert worker like Shri Gourhari Das to spin 8 hanks of yarn in a day of 8 working hours, for converting the lint to yarn. The figures given under Q. 1.

show that it may not be possible to produce more than 4.4 hanks of yarn for 20s.

Question 4.—Given the required intervals of rest, would an average adult be able to continuously produce 8 hanks of yarn per eight-hour-day, if he works on the Charkha for months together, taking into account fatigue, psychological and other factors?

Ans.—It does not seem possible to produce 8 hanks of yarn per 8-hour day, even if sufficient breaks are given for the worker to rest. As stated above (item 4), an out-put of 4 hanks per day of 8 working hours (from lint to yarn) is possible.

Question 5.—What is the period of training that an average adult would require to enable him to produce 8 hanks of yarn in a day of 8 effective working hours?

Answer.—The person who worked at the Laboratory had been trained at Wardha for a period extending over some months. Even there he was not able to produce 8 hanks per day of 8 working hours. It seems, therefore, that the period of training beyond a certain minimum, is quite immaterial.

Question 6.—Would the spinner require any further training by way of refresher course? If so for what period?

Answer.—Cannot answer this question.

Question 7.—Answered under (D) 9.

(C) *Quality of cotton.*

Question 1.—Have the experiments in your institution been conducted with high grade cotton or varying grades of cotton?

Answer.—It is presumed that by 'grade' it is meant staple characteristics, such as staple-length, fineness, uniformity of staple, strength, feel and so on; though grade generally includes colour, cleanliness, amount of trash and dirt, ginning preparation and so on. If the above presumption is correct, it may be stated that the experiments were conducted with different varieties of cotton, possessing wide range of fibre-length and fineness, the mean fibre-length ranging from 0.70 inch to 0.96 inch.

Question 2.—What counts of yarn are produced with varying grades of cotton?

Answer.—10s-14s and 20s-30s were produced from machine-ginned lint and 40s-50s were spun from lint obtained by hand-ginning the selected seed-cotton (kapas), the former from short stapled cottons and the latter from medium and long stapled cottons.

Question 3.—What is the out-put of yarn, if average qualities cottons which are available in bulk, are used by the spinner?

Answer.—This question is already answered under (B) 1.

Question 4.—Is it necessary to fix any particular variety of cotton for producing different counts of yarn?

Answer.—It might be profitable to spin an economic count from a given variety of cotton.

(D) *Qualitative Production.*

Question 1.—Is the yarn produced clean and smooth?

Answer.—The yarn produced on the Ambar Charkha was fairly clean because it was produced from clean cotton, but a little over-twisted, which makes it somewhat snarly and rough in lower counts.

Question 2.—What are the count variations, in a unit of one hank of yarn?

Answer.—The count variation is generally within 6 per cent. within a hank.

Question 3.—What is the tensile strength of the yarn?

Answer.—Assuming that tensile strength, in this context, means lea strength, the experimental values are given in the table attached, herewith.

Question 4.—Is the yarn produced, capable of passing through the reeds, during weaving, without many breakages, because of the variations in the counts?

Answer.—Yes; it would pass through the reeds during weaving.

Question 5.—What should be the maximum count variation, in order to reduce breakages to the minimum?

Answer.—Generally, it should not exceed 10 per cent. of the nominal count.

Question 6.—Whether the Ambar Charkha set is capable of producing yarn of coarse, medium and fine counts?

Answer.—Yes; coarse and medium counts can be spun from machineginned lint, but if higher counts are to be spun from the same cotton it appears that the lint obtained from hand-ginning from selected kapas would be required.

Question 7.—What adjustments, if any, are required for producing yarn of different counts?

Answer.—Suitable drafts, speeds, twists have to be adjusted.

Question 8.—What actual count-ranges, is the Ambar Charkha set capable of producing for example, 6s to 18s, 18s to 32s, 32s. to 48s, etc.

Answer.—The counts spun on the Ambar Charkha in the Laboratory experiments are within these ranges.

Question 9.—How does the strength and count variation of Ambar yarn compare with the average reeled yarn of identical counts?

Answer.—No information is available on the standards for reeled yarn, having regard to the mixing used in the mills.

(E) *Weaving.*

Question 1. }

Question 2. }

Question 3. } No experiments have been conducted at this Laboratory.

(F) Wastage.

Question 1.—What is the percentage of waste in spinning?

Answer.—In the experiments carried out at the Laboratory, the lint was opened by beating on the jally, in which process, some dirt and trash were removed. The lint was then weighed and the wastage obtained based on this lint weight, varied from 6·2 per cent. to 26·8 per cent. depending upon the cotton and the treatment.

Question 2.—How does this compare with wastage in producing mill yarn of identical counts?

Answers.—The wastage in a mill is likely to be slightly higher than that obtained for the Charkha, because in the latter the blow-room loss and card loss do not occur to the same extent as in a mill.

Question 3.—What is the percentage of wastage in weaving?

Question 4.—How does this compare with waste in weaving with reeled yarn?

Answer.—Not investigated.

(Sd/-)

DIRECTOR,
Technological Laboratory.

Dated the 17th March 1956.

[Ref: Answer to Question (D) 3.]

TABLE.—Lea strength (lbs.) values for
yarns spun on Ambar Charkha.

Cotton	Lea strength (lbs.) [for					
	10s	14s	20s	30s	40s	50s*
Matheo Local.	68·9	34·9	..	..	..	..
35/1	97·1	57·0	..	..	..	..
Gaorani 6	75·2	35·7	..	..
Vijay	79·1	43·4	34·4	..
H. 420	41·4	30·1	..	..
Jarila	60·2	39·1	..	..
Laxmi	76·0	42·1	40·8	..
Co. 2	58·7	32·0	..	..
K.2	63·4	35·6	..	..
Buri 0394	28·5	31·5	27·3
M.A. 5	19·1	31·1	22·4
M.C.U. 1	37·6	34·8	29·3

*Starting material was *Kapas* in these two counts.

Replies of the Principal, Government Central Textile Institute, Kanpur, to the Questionnaire on Ambar Charkha issued by the Ambar Charkha Committee, Ministry of Production, Government of India.

QUESTIONS

REPLIES

(A) *The Charkha Set.*

- | | |
|--|--|
| (1) For what period of time have you been experimenting with the Ambar Charkha ? | Three weeks. |
| (2) Do you consider the charkha set a technically sound implement ? | It is a technically sound implement for the purpose it is meant. |
| (3) Is the mechanism simple or complicated ? | Mechanism is simple. |
| (4) Is it easy to operate ? | It is easy to operate. |
| (5) Is it capable of easy repair and replacement of parts that might become worn out ? | Replacement of parts can be done easily.
Repairs can be done by trained carpenters. |
| (6) Is there any scope for immediate adjustment in the charkha set, so as to make it a more effective instrument of production ? | It is under examination. |
| (7) Whether the different tools or machine comprising the Ambar charkha set are capable of being worked with hand ? | They are capable of being worked with hand. |
| (8) Can the existing Ambar charkha be easily adapted for being worked with electricity ? | It would require substantial modifications to adapt it for being worked with electricity |
| (9) Some of the parts of Ambar charkha which are in the nature of precision parts can these be manufactured by ordinary carpenters? Should they be manufactured in several centres or in one or more mechanised workshops, in order to maintain uniformity ? | The parts of Ambar charkha which are in the nature of precision parts are made of iron and steel. They cannot be manufactured by ordinary carpenters. They may better be got manufactured in standard workshops in order to maintain uniformity. |

(B) *Quantitative Production.*

- | | |
|--|--|
| (1) How many hanks of yarn can an average adult produce in 8 hours of effective work ? | An average adult can produce in 8 hours of effective work 6 to 8 hanks. |
| (2) At what period of time, during an eight hours day, would the spinner show signs of fatigue which might lower his production capacity ? | The conditions are quite different in cottage industries and the worker takes rest according to his convenience. However rest at the end of every two hours for about 15 minutes to half an hour seems to be desirable. During summer, work is done in the rural areas in morning and evening shifts. This holds good in case of Ambar charkha as well. Between these two shift there is generally an interval of 3 hours. |
| (3) What intervals of rest would be necessary and at what frequency? to ensure that a spinner is able to maintain a production rate of 8 hanks of yarn in a day of 8 effective working hours ? | |
| (4) Given the required intervals of rest would an average adult be able to continuously produce 8 hanks of yarn per eight hour day if he works on the charkha for months together taking into account fatigue, psychological and other factors ? |  | He would be able to produce 6 to 8 hanks according to his capacity. |

QUESTIONS

REPLIES

- (5) What is the period of training that an average adult would require to enable him to produce 8 hanks of yarn in a day of 8 effective working hours?
- (6) Would the spinner require any further training by way of refresher course? If so, for what period?

The period of training will depend on the capacity of the man; but on an average it is suggested that the period may be of 3 months to give the trainee thorough practice and acquire speed and efficiency.

No refresher course seems to be necessary.

(C) *Quality of Cotton.*

- (1) Have the experiments in your institution been conducted with high grade cotton or varying grades of cotton?
- (2) What counts of yarn are produced with varying grades of cotton?
- (3) What is the out put of yarn, if average qualities cotton which are available in bulk, are used by the spinner?
- (4) Is it necessary to fix any particular variety of cotton for producing different counts of yarn?

No. Only one or two varieties were worked.

Vijai and *jarila* cottons were used and output was 6 to 8 hanks. Range of counts was 14 to 20.

This has not yet been tried.

(D) *Qualitative Production.*

- (1) Is the yarn produced, clean and smooth?
- (2) What are the count variations, in a unit of one hank of yarn?
- (3) What is the tensile strength of the yarn?
- (4) Is the yarn produced capable of passing through the reeds, during weaving, without many breakages, because of the variations in the counts?
- (5) What should be the maximum count variation, in order to reduce breakages to the minimum?
- (6) Whether the Ambar charkha set is capable of producing yarn of course, medium and fine counts?
- (7) What adjustments, if any, are required for producing yarn of different counts?
- (8) What actual count-ranges, is the Ambar charkha set capable of producing? For example, 6's to 18's, 18's to 32's, 32's to 48's etc.
- (9) How does the strength and count variation of Ambar yarn compare with the average reeled yarn of identical counts?

This is still under observation.

Sufficient tests have not been performed to give definite opinion.

The yarn produced is capable of passing through the reeds during weaving but there are breakages because of the variations but in the counts. Sufficient data has not yet been collected.

2 to 3 counts up and down.

Only medium counts of yarn was produced during the short period the charkha was tested.

This has not yet been tried.

In this Institute only 14 to 20 counts have been produced during the few days that the charkha has been tried.

Not yet tried.

QUESTIONS

REPLIES

(E) *Weaving.*

- | | | |
|---|---|----------------|
| <p>(1) Is the yarn of sufficient strength, to eliminate, difficulty in sizing and weaving.</p> <p>(2) Whether it is capable of being woven more or less, as easily as the average reeled yarn available to handloom weavers.</p> <p>(3) In the back ground of the weaving tests conducted in your institution and in the back ground of the quality of yarn produced by the Ambar charkha what textures of cloth, of specified reeds and picks would you consider capable of being woven by handloom weavers.</p> | } | Not yet tried. |
|---|---|----------------|

(F) *Wastage.*

- | | | |
|---|---|---|
| <p>(1) What is the percentage of wastage in spinning ?</p> <p>(2) How does this compare with wastage in producing mill yarn of identical counts ?</p> <p>(3) What is the percentage of wastage in weaving ?</p> <p>(4) How does this compare with wastage in weaving with reeled yarn ?</p> | } | <p>6 $\frac{1}{2}$ to 12 $\frac{1}{2}$ %.</p> <p>In mill yarn the wastage is 12 to 18 %. This will vary from cotton to cotton and mill to mill.</p> <p>Not yet tried.</p> |
|---|---|---|

Dated May 19, 1956.

Sd/- J.N. SINGH,
PRINCIPAL,
Govt. Central Textile Institute
KANPUR.

APPENDIX V
Replies to the Questionnaire on economic Aspects





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APPENDIX V

REPLIES TO THE QUESTIONNAIRE ON ECONOMIC ASPECTS:

I

DIRECTOR OF INDUSTRIES WEST BENGAL

REPLIES TO THE QUESTIONNAIRE ISSUED BY THE AMBAR CHARKHA COMMITTEE ON THE ECONOMIC ASPECTS OF THE AMBAR CHARKHA.

(A) Cost of production of yarn.

1. Raw materials—

Average price of indigenous cotton per candy of 800 lbs. should be taken as Rs. 750/.

2. In the agricultural peak period, the agricultural wages rise upto Rs. 1/8/- per day while in the slack season wages come down to -/8/- to -/10/- per day and some times the labourers have to sit idle. So on an average the reasonable wages for the Ambar Charkha Spinners should be at least -/12/- per day of 8 hours' work ensuring work for at least 300 days in a year earning Rs. 275 per annum.

3. Overheads—

The overheads may be calculated @ 6½ per cent. over the cost of production including cost of establishment, freight and other charges.

4. Handling charges—

(i) It is not necessary to include separate charges for handling in addition to the overheads.

(ii) In case the yarn spun is not locally consumed, handling charges to the extent of 1½% may be given out of the overhead charges.

5. Wastage—

Percentage of cost for wastage should not exceed 10% which may be added to the cost of production.

(B) Subsidy on distribution of yarn—

1. Approximate total cost of Production per lb. of yarn.

	20's
(i) Raw cotton .	-/13/6
(ii) Wastage .	-/ 1/6
(iii) Spinning and carding charges .	1/14/-
(@ -/12/- a day)	

Rs. 2/13/-

Overheads 6½% -/ 2/9

Total 2-15-9

2. Cost of mill yarn 20's per lb.

Rs. 1/10/6

Cost of Amber yarn 20's per lb.

Rs. 2/15/9

The difference is Re. 1/5/3 per lb.

3. The entire difference need be subsidised at the initial stage by the Government.

4. In order to make Ambar yarn competitive, *vis-a-vis* mill yarn of comparable counts, I would recommend the placing of a ban on production by mills on count range below 20's. The mills should not be allowed to produce yarn beyond that range.

5. It is a fact that this procedure of putting a ban on mills on production of certain counts, will create a monopoly for the Ambar Charkha, but it will not affect the consumers to a very large extent. The introduction of Ambar Charkha is meant mainly to solve the unemployment and under-employment problem of the country especially in the rural areas. This means creation of national wealth by offering a means of production to all the under-employed. If a subsidy is to be given to make Ambar Yarn competitive *vis-a-vis* mill yarn, taxation will have to be introduced to meet the subsidy. If the present method of putting a cess on mill made cloth is expanded, that will also raise the price of mill made cloth and the consumers will have to pay it. But if a restriction on mill production is introduced, the consumers will find it more convenient to get themselves also employed in the production of yarn themselves; because it is the rural population who use coarser cloth below 20's. If they do not find coarse mill cloth in the market, they will automatically take to spinning and will become self employed. So the ultimate consumer of cloth manufactured out of yarn below 20's will be benefited by this method.

(C) *Subsidy on the distribution of Ambar Charkha—*

- (i) Cost of production.—We do not manufacture Ambar Charkha.
- (ii) The Charkhas to be made available to the unemployed and under employed village spinners should be supplied at a subsidised rate.
- (iii) In my opinion 75% of the cost should be given as grant and 25% to be realised on hire purchase system.

(Sd/.)

Director of Industries,
West Bengal.

II

DIRECTOR OF INDUSTRIES, PUNJAB

REPLIES TO THE QUESTIONNAIRE ISSUED BY THE AMBER CHARKHA COMMITTEE

(A) *Cost of production of yarn.*

(I) *Raw Material.*

The average price of cotton i.e. Bengal Desi Cotton Rs. 55 to Rs. 60/- per maund (about Rs. 585/- per candy) for calculating the cost of production of yarn.

(2) Rupee one per day. The average Agricultural wage for unskilled made workers is from Re. 1/8/- to Rs. 2/- per day.

(3) *Overheads.*

6½% on the production of yarn and 20 per cent (including the above 6½ per cent) on the production of cloth.

(4) *Handling.*

(i) Yes.

(ii) About 5 per cent as direct charges.

(5) *Wastage.*

20 per cent.

(B) *Subsidy on the distribution of yarn.*

(1) Assuming that a spinner can spin from 8 to 10 hanks per day. Rs. 3/- to Rs. 3¼/- per lb. will be the cost of yarn.

(2) Mill reeled yarn 16's @ Rs. 1/10/- per lb., 20's @ Rs. 2/- per lb.
Ambar yarn average Rs. 3/- to Rs. 3¼/- per lb.
Difference. Rs. 1/6/- to Rs. 1/10/- per lb.

(3) 40 per cent of the price of yarn.

(4) There should be a ban on the sale of mill yarn upto 20's and cloth made out of yarn upto 20's inside the Union of India i.e. such yarn and cloth should be used for export purposes only.

(5) No question of monopoly arises when it is to be in favour of the entire nation. At a modest computation, there may be about 4 million spinners in the Union of India. Then there may be competition between individual spinners. The object is to avoid most unequal competition between handspinners and the mill spinners; for most common counts, i.e. below 20's.

(Sd./.)

Director of Industries,
Punjab.

III

DIRECTOR OF INDUSTRIES, MADRAS

No. DRDVT/JV.-2/56, dated 14th May 1956.

Subject: Questionnaire on Ambar Charka.

Sir,

Reference: Your letter No. 4ACC/56, dated 1st May 1956.

I furnish below the answer to the questionnaire sent with your above letter.

A. (i) Cost of raw materials (cotton): The price of cotton is not known to this Department but the price of cotton to be taken for calculation of production cost of yarn should be the price of unginned cotton.

(2) A wage of Re. 0-12-0 per day of 8 hours may be considered to be reasonable wage for the spinners.

(3) An overhead charge of Re. 0-2-0 per day may be added to the cost of production to cover repairs and renewals to the spinning implement.

(4) No separate handling charges are necessary. (purchase of raw materials and sale of finished products to be organised through co-operatives).

(5) A wastage of about 8 per cent. may be assumed when calculating the output of yarn from a given quantity of cotton.

B. Particulars are not available with this Department, to answer this part.

C. (1) Total estimated cost of production of the spinning wheel, sliver making machine, carding machine and hand operated ginning machine is Rs. 100.

(2) The Charka should be supplied to spinners at subsidized rate.

(3) 50 per cent. of the cost may be paid as an outright grant.

(Sd.) P. MUTHUSWAMY,
for Director of Industries & Commerce.
forwarded/by order.
(Sd.) Superintendent.

IV

REPLIES OF THE DIRECTOR OF INDUSTRIES, VINDHYA PRADESH TO THE QUESTIONNAIRE ON ECONOMIC ASPECTS.

(A) Cost of Production of Yarn.

(1) Raw material.

The average price of cotton per candy (5 mds.) should be taken as Rs. 350.

(2) Re. 1 per day.

(3) 15 per cent.

(4) (i) No.

(ii) Does not arise.

(5) 5 per cent.

(B) Subsidy on distribution of yarn.

(1) Rs. 3-2-0 to Rs. 3-12-0 per lb.

(2) From As. 0-4-0 to As. 0-14-0 per lb.

(3) 50 per cent.

(4) An outright subsidy may be given to start with. The question of placing a ban on production by mills could be taken up later when the production of yarn through Ambar Charkha has gone up considerably so as to meet country's demand.

(5) Does not arise.

(Sd.) S. JAIN,
Director of Industries.

V

LETTER No. ECR/AC/56, DATED 18-5-56 FROM THE KHADI BOARD.
(REPLIES TO THE QUESTIONNAIRE ON ECONOMIC ASPECTS).

SUBJECT:—*Questionnaire on the Economic Aspects of the Ambar Charkha.*

Will you please refer to your circular letters No. 4-A.C.C./56(B), dated May 1 and May 10, 1956? I am to furnish replies to the questions posed in those letters as follows:—

A(1) *Raw material.*—The average price of raw cotton for the manufacture of yarn of 16's should be Rs. 600 per candy and of 20's Rs. 700 per candy. These are, however, the barest minimum today as price fluctuations during the last few months have been very wide.

(2) The Board is of the view that a daily wage of 12 annas to the spinner is reasonable. Though the all-India average agricultural wage varies from occupation to occupation and ranges between 14 annas to Rs. 1-2-0 per day, work available to agricultural labour over the major portion of country-side is only for a very limited period. Consequently, if it is spread over the entire year of 300 days, the all-India average wage, computed by the Agricultural Labour Enquiry Committee, will be seen to be lower than the wage proposed by the Board for the spinner on the Ambar Charkha.

(3) *Overheads.*—The overhead charges on the present traditional khadi are computed at 18½ per cent.; these are inclusive of establishment, transport, insurance etc. In the Ambar Charkha scheme, the Board expects a progressive reduction in the overhead costs from the present 18½ per cent. to 12½ per cent. By what stages this reduction will be effected and by how much are points that cannot now be indicated.

(4) *Handling charges.*—(i) The Board contemplates a thorough revision of its earlier Ambar Charkha programme and directly undertaking the manufacture of cloth from yarn produced on the Ambar Charkha. The question of handling charges or its appropriate percentage of total costs may not, therefore, arise.

(ii) Does not arise.

(5) *Wastage.*—The Board's Ambar Charkha programme allows for 12½ per cent. of the cost of raw cotton for wastage. The details, set out in the enclosed table, show the wide variations in the percentage of wastage of raw cotton in carding, slivering and spinning. The Board considers 12½ per cent. allowance, on a national average, for calculating the price of yarn as reasonable.

B. In view of the answer to question A(4), these questions do not arise.

Subsidy: A firm answer to the additional question forwarded with your letter No. 4-A.C.C./56 of May 10, cannot be given till after the Board's meeting at Conjeevaram. The figures furnished below are tentative. As several months of the first year of the Plan period have elapsed without any preparation for the implementation of the Board's Ambar Charkha programme and only four effective years are available, the progression in production may have to be revised as 6 M. of Production.

shown in the table below. The Board believes that 25 per cent. of the annual output of cloth with Ambar yarn may be consumed by the spinners, weavers and their respective families. Consequently, only 75 per cent. of the annual output of cloth may have to be marketed either locally, regionally or through special shops. The subsidy on cloth is calculated at the rate of 4 annas in the rupee, and the cost per yard of cloth is the same as in the Board's latest Ambar Charkha Programme. The subsidy at 4 annas in the rupee represents the payment of an additional subsidy of 2 annas in the rupee, as all handloom cloth today enjoys a 2 anna rebate in the rupee.

Yours sincerely,
(Sd.) J. D. SUNDRAM.

REGION-WISE ANALYSIS OF WASTAGE

Region	Quality of cotton supplied	Count range	Percentage of wastage
1	2	3	4
1. Bengal	Jarilla	15—20	11·08
2. Andhra	Red cotton	9—20	13·53
3. Karnatak	Jaydhar	12—20	18·50
4. Maharashtra	197/3	13—20	12·07
5. Kerala	Jarilla & Karanganni	11—20	11·63
6. Tamil Nad	Ukkanta & Karanganni	13—24	9·80
7. Utkal	Jarilla	12—20	21·68
8. U. P.	Jarilla	14—16	7·45
9. Punjab	Surti	12—18	15·99
10. Bihar	Navsari	12—25	11·66
11. Madhya Bharat	197/3	13—16	6·19
12. Hyderabad	Navasari	12—30	6·31
13. Saurashtra	Vijay	11—20	14·60

Source : Data on Spinning Competitions on the Ambar Charkha conducted at the various Parishramalayas after April 13, 1956.

Tentative Estimate of Production of Ambar Khadi.

Items	Unit	1956-57	1957-58	1958-59	1959-60	1960-61	Total
	Mn. Yds.						
1. Production of Khadi	„	25	175	500	800	1,000	2,500
2. <i>Vastrasavalamban</i> at 25 per cent.	„	6·25	43·75	125	200	250	625·00
3. Marketable surplus	„	18·75	131·25	375	600	750	1875·00
4. Value of cloth at Rs. 1-2-0 per yard	Rs. crores	2·11	14·77	42·19	67·50	84·38	210·95
5. Subsidy at as. 4 in the rupee.	„	0·53	3·69	10·55	16·88	21·09	52·74

VI

A.T.I.R.A.'S REPLIES TO THE QUESTIONNAIRE ON THE ECONOMIC ASPECTS OF THE AMBAR CHARKHA.

A. Cost of production of yarn.

Question A1.—Raw Material.

Assuming that Ambar yarn in a range of 16 to 20 counts is to be produced, with indigenously grown cotton, what is the average price of cotton per candy that should be taken for purposes of calculating cost of production of yarn?

Answer:—Prices paid in Ahmedabad today for cottons spinning from 12's to 20's count yarn are as follows:—

Count	Cotton	Price
12's } 14's }	Wagad	Rs. 39-8-0 Per Bengal Maund.
18's 18's	Jarila Kalyan	„ 700—750 per Candy. „ 830 „
20's	Bijay	„ 960 „
20's	Surni	„ 1080 „

Wastage

Question A5:—What in your view is the percentage of cost that should be added on account of wastage?

Answer.—In our experiments the waste taken out in the *Dhuni Modhia* operation (Opening and cleaning) from the cotton spinning to 20's was on the average 8.2 per cent. This waste is not useable but it may fetch some return. The *Belni* waste is workable.

B. Subsidy on distribution of yarn.

Question B2:—What is the difference between this (cost of production per lb. of yarn) and the cost of reeled mill yarn, between the ranges of 16's and 20's?

Answer:—Price paid in Ahmedabad on the wholesale basis for 10 lbs. of packet of 20's reeling yarn used in the experiments, was Rs. 17-8-0.

C. Subsidy on the distribution of Ambar Charkha.

Question C1:—What is your estimate of the cost of production of your model of the Ambar Charkha?

Answer:—According to our rough estimate the cost would not exceed 10 per cent. of the present price of the Charkha Set.

We regret we are not in a position to reply to the questions still left out because of the lack of information and experience on the points inquired.

(Sd.) B. K. VAIDYA,
Assistant Director,

VII

DR. D. R. GADGIL'S REPLIES TO THE QUESTIONNAIRE ON ECONOMIC ASPECTS OF THE AMBAR CHARKHA.

Mrs. P. Johari,
Secretary to the Ambar Charkha Committee,
Ministry of Production, Govt. of India,
New Delhi.

Dear Madam,

Reference: Your letter No. 4.A.C.C./56, dated 1st May 1956.

The questions with which the Ambar Charkha Committee is concerned appear to be, in the main, technical. I am not competent to express an opinion on any of these. I should, however, like to express briefly my views in relation to subsidies etc. I should like the question to be considered as relating not to a particular model of the Charkha but to that of establishing in the country spinning on a decentralised basis which progressively becomes so efficient that ultimately no real subsidy is required from the community to bridge the gap between the cost of mechanical and power driven decentralised spinning and that of centralised factory spinning. I would, therefore, be against freezing technique at any particular stage or giving monopoly to a particular model by, here and now, basing the entire future production of new yarn on a model which is still capable of being improved or being replaced by another superior model.

In the light of the above I would suggest that:

- (1) the help given to any form of decentralised spinning should be through subsidies and not through bans on other types of spinning;
- (2) the extent of the subsidy ought to be limited by the type of considerations and the measure indicated by the Karve Committee;
- (3) in no case should a definite monopoly be created in favour of any model until it can be proved that within measurable time, for production on that model, the subsidy can definitely be abolished;
- (4) the wage obtained by spinners on any decentralised model should be considered as an important criterion and a new model should be established in areas and to the extent that labour is available in fair supply in the particular areas, at the rate of wages yielded by the model and which does not contain a substantial measure of subsidisation.

Yours faithfully,
(Sd.) D. R. GADGIL,
Director.

VIII

REPLIES OF THE DIRECTOR, SCHOOL OF ECONOMICS AND SOCIOLOGY, UNIVERSITY OF BOMBAY, TO THE QUESTIONNAIRE ON ECONOMIC ASPECTS.

Please refer to your letter No. 4.A.C.C. 56(B3), dated 14th May, 1956 on the above subject. We in this School have not made any special study of this subject and as such it is difficult to give our considered opinion on the same.

Reports from the laboratories on the tests carried out on the Ambar Charkha, Ambar Yarn and Ambar Khadi





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APPENDIX VI

REPORTS FROM THE LABORATORIES ON THE TESTS CARRIED OUT ON THE AMBAR CHARKHA, AMBAR YARN AND AMBAR KHADI.

A.T.I.R.A. REPORTS

I

INTERIM SUMMARY REPORT ON THE PERFORMANCE OF THE AMBAR CHARKHA

The Ambar Charkha set was received at A.T.I.R.A. for study and experiments as well as for the ultimate testing of its spinning performance, sometime in August 1955. In close collaboration with the workers provided by the Ambar Charkha Samiti of the Sarva Seva Sangh, A.T.I.R.A., carried out a series of preliminary experiments, spinning on the Charkha yarns of 18s, 24s and 30s count from the *Surti* and the *Vijay* varieties of bale cottons. Extensive physical tests for thelea strength, count, evenness and appearance, were made on these yarns and the programme lasted till about the end of November. Some idea of productive capacity of the various units of the Charkha set, was also obtained during this time.

The preliminary work on the Charkha indicated that the quality of the yarn spun could be improved by certain modifications of some of the parts in all the three units of the set, as well as by adopting certain alternative procedures in processing, particularly on the '*Belani*' machine. These indications were followed up quantitatively by numerous tests on rovings, when it was clear that variations in yarn counts, strength and evenness could be markedly reduced by the introduction of the mechanical modifications proposed and adoption of the revised methods of processing. The final model of the Charkha incorporating most of these modifications was approved by the Ambar Charkha technicians at a meeting held in Ahmedabad at the instance of the Ambar Charkha Samiti. The spinning performance of the Charkha and the weaving quality of the yarns produced are now being regularly studied by series of designed experiments on five spinning sets and one handloom, installed for the purpose in a special shed put up at A.T.I.R.A. by the Samiti. Yarns of 12s, 20s and 40s count are being spun respectively from the bale cottons, *Wagad*, *Vijay Rajpalayam*. About twenty yards of square cloth with the requisite number of ends and picks is being woven from each count of yarn. For comparison, mill yarns of corresponding counts, locally purchased, are also being tested for their quality and weaving performance on the same loom. The physical tests to

which the Ambar Charkha as well as the Mill yarns are subjected are lea strength, count, uniformity, visual appearance and continuous winding breaks under tension. The cloth made from the two sets of yarns is being tested for tensile strength, bursting strength, abrasion, the number of ends and picks before and after de-sizing and for shrinkage on washing.

The modifications introduced in some of the constructional details of the units in the Charkha set and in the methods of processing the cotton through the various machines are described in Appendix A.

Appendix B shows the improvement in Ambar Charkha yarn which has resulted after introducing the changes as approved by the Ambar Charkha Samiti. A systematic experiment with no further changes being introduced in the technique of spinning is now in progress. A.T.I.R.A. will be in a position to send by the end of March a detailed report covering 20s yarn and will also furnish comparative performance figures of the Ambar Charkha yarn with mill reeling yarn of the same count commonly being used by handloom weavers in the Ahmedabad area.

On behalf of A.T.I.R.A. it is a pleasure to thank Shri Krishnadas Gandhi, the Secretary, Ambar Charkha Samiti for placing at our disposal all the necessary resources.

APPENDIX A

Machine and Process Modifications

1. Dhunai modhia (opener and Cleaner)

Two modifications have been introduced in this machine which opens and cleans the cotton:—

- (i) Strips of used doffer vibrating combs from the mill carding engine have been substituted for the ordinary rough galvanized iron combs fixed around the cylinder, 3" in diameter.
- (ii) Setting between the feed plate and the cylinder has been made adjustable from $1/32''$ to $3/32''$ while the shape of the feed plate nose has also been suitably changed. These modifications were necessary in order to reduce the fibre rupture. The Bear Sorter analysis results of the Vijay Cotton samples opened with the old and modified units are given below:—

	Old Dhunai Modhia		Modified Dhunai Modhia	
	Bale cotton (Vijay)	Opened cotton	Bale cotton (Vijay)	Opened cotton
Effective length	0.99"	0.95"	1.01"	1.00"
Mean fibre length	0.85"	0.80"	0.89"	0.87"
Per cent. short fibres	6.5	7.9	4.5	6.0

In processing cotton through the *Dhunai Modhia* the following procedure is adopted:—

- (i) The unopened cotton is made into a lap form, suitable for feeding the machine by first using the drawing arrangement of the "*Belani*". This lap is then fed, opened and cleaned only once through the *Dhunai Modhia*.
- (ii) The opened cotton is made into a lap form 6" wide ready for being processed on the *Ambar belni*.

2. *Ambar Belani* (Drawing and Roving Machine)

This machine combines the work of the drawing and the speed frames used in the normal mill operation. The modifications introduced are:

- (i) Two sizes of roller stands have been made, one to suit short staple cotton with a centre to centre distance of 31/32" and the other to suit the medium and the long staple varieties, with a centre to centre distance of 36/32". The bottom fluted rollers are 7/8" diameter in both the cases.
- (ii) Racks with pegs have been provided as bottom supports of the top roller weighting springs, to simplify adjustment of spring pressure on the rollers. Ordinarily the pressure on the back roller is higher than that on the front one.
- (iii) The feed table sides have been made smooth by fixing rounded wooden brackets thus avoiding the rubbing of the lap or silver against the rough sides. Wooden guides (crescent shaped) have been used to effect a safer feeding of silvers and rovings.
- (iv) An extra pair of self weighted calender rollers set at a 45 inclination preceded by a funnel have been provided for use at the drawing stage prior to the insertion of twist. This device eliminates the irregularities formerly introduced in the rovings by an improper handling of the strands delivered.

At the same time it helps to make a proper consolidation of the fibres. During the latter operations of drawing the twisting the calender rollers are replaced by a polished, smooth tin plate and a funnel. The use of the plate eliminates the excessive ballooning of the delivered strand which would be otherwise detrimental to the quality of the roving.

- (v) The dimensions of various pulleys used are in conformity with those set as standards for the full production.
- (vi) The draft is maintained constant at about 5.0. In processing cotton through this machine the number of passages and the total doublings to be made are in accordance with the roving bank required. A variable number of passages and doublings are not desirable as the roller drafting irregularities increase with the number of processes, in

spite of the doubling effect. For a hank of 2.0 to 3.0, 8 passages are desirable, while for a hank of 1.5, 7 passages are good enough. Whatever may be the number of passages the first drawing operation and the first drawing and twisting operation are always done with single hand feed. Since the draft in *Belni* is maintained constant at 5 the number of doublings used in the last one or two passages is decided on the roving hank delivered.

3. Amber Charkha (Spinning Frame)

The modifications in some constructional details of the Charkha are:

- (i) Roller stands suitable for processing short, medium and long staples have been used with centre to centre distance of $7/8"$, $1"$ and $1\frac{1}{8}"$ respectively. Both the bottom rollers are $6/8"$ diameter for short staple processing and $7/8"$ for processing long staples.
- (ii) Lappet guides have been made adjustable with respect to the centre of ring and spindle. With the help of a simple spindle gauge it is easy to centre the spindles very quickly.
- (iii) The angle of roller inclination to the horizontal has been fixed at 35.
- (iv) The traverse length of the ring rail is 3". An antifriction bowl has been provided to follow the cam.
- (v) All the four spindles are made to work in one horizontal plane by suitable adjustments of the heights of the spindle cord tension pulley from the spindle wharve level.
- (vi) The dimensions of the various pulleys used are in conformity with the standards set for the full scale production.

In the final processing of cotton on the Charkha, single ends of roving are fed while the draft is maintained at 8 and the rate of yarn delivery at about 13 to 14 yards per minute.

TABLE III

Yarn Unevenness

Yarn	Per. cent Deviation mean from normal		Average and breaks in spinning per lb. of yarn.
	At low speed	Speed at High	
Preliminary experiments (Vijay Cotton 18s)	21.2	23.8	
Final test (Vijay Cotton 20s) . . .	14.5	16.4	8.7

PART IV

Preparatory and Weaving particulars

Yarn	Breaks per lb. of yarn		Reed and picks per inch.	Length of warp	End breaks in looms	Production per hour
	Winding for warp- ing.	Warping.				
Final test (Vijay Cotton 20s).	133	5	46/46	12 yds.	0	2.0 yards.

APPENDIX B

TABLE I

Waste removed at *Dhunai Modhia* and *Belni*.

Machine	Per. cent waste	Remarks
<i>Dhunai Modhia</i>	8.5	The figure includes the waste rejected in the process preparatory to opening.
<i>Ambar Belani</i>	4.9	
Total Waste	13.4	

TABLE II

Average Count, Lea Strength, Coefficient of variation in Count and Strength and average turns per inch.

Yarn	Average		Coefficient of variation		
	Count	Strength	Count	Strength	Twists per inch
Preliminary experiments	17.6	61.2	8.0	19.2	..
(Vijay Cotton, 18's Nominal)	18.4	56.0	6.0	18.9	..
Final tests (Vijay cotton 20's nominal)	19.6	84.6	7.0	12.6	19.2

(The average reving bank in the final test : 2.5).

II

THE PERFORMANCE OF AMBAR CHARKHA

(Supplement to the Interim Summary Report submitted on March 2, 1956 by A.T.I.R.A.—Ahmedabad)

1. *Cost comparison of cotton used for producing 20s Count-yarn in Charkha Spinning and Mill Spinning:*

The Ambar Charkha yarn of 20s count was produced from pure Vijaya cotton, whereas in composite mills it is customary to use cotton mixings for 20s, 19s and other nominal counts. Preliminary finding indicates that per pound the mill mixings for producing 19s-20s yarn would be anything from 6 pies to 2½ annas cheaper.

More detailed and accurate figures would be collected for the report to be submitted at the end of this month. Figures for the waste extracted in the Ambar Charkha and in the mill are comparable.

2. *Ambar Yarn Quality: Strength and Weaving Performance:*

In Table I below the comparative lea strength figures for Ambar Yarn and Mill Yarns (for handlooms and Mill-looms) are shown:

TABLE I

I	2	3	4	5	6	7	8
Yarn particulars	No. of tests	Average count	Coefficient of variation in count	Average Lea strength in lbs.	Coefficient of variation in Lea strength	Corrected strength	Remarks
<i>Ambar Yarn</i>							
Charkha Set I	48	19.0	10.3	81.6	9.4	75.5	
Charkha Set II	48	19.7	6.7	85.0	13.0	83.1	
Charkha Set III	54	19.8	6.7	86.6	13.8	85.3	
Charkha Set IV	48	19.9	6.2	83.8	14.0	83.1	
Charkha Set V	62	19.8	5.0	86.0	12.9	84.8	
Corresponding Mill reeling yarn.	160	20.0	4.3	75.8	11.2	75.7	

*Mill Yarn** for handlooms
20's Count.*

Mill Serial No. 65	20	18.6	5.2	57.0	8.3	50.6	
66	20	20.5	6.9	64.8	9.8	67.4	
67	20	19.3	6.1	58.8	8.3	55.2	
68	20	18.6	7.4	53.6	10.6	47.3	

1	2	3	4	5	6	7	8
69	.	20	19.6	4.3	60.3	11.6	58.4
70	.	20	17.4	5.4	47.8	9.8	36.8
71	.	20	19.4	4.5	64.6	9.5	61.4
72	.	20	20.3	7.6	56.9	7.3	58.5
73	.	20	20.6	8.5	48.8	12.6	51.2
74	.	20	20.1	5.8	60.3	9.3	60.6
75	.	20	20.1	8.0	53.8	12.1	54.0

**Samples received from the Textile Commissioner Office at Ahmedabad.

Mill Yarn for Mill*ooms 19's Count.									Period
A . . .	190	18.8	3.1	76.3	9.02	74.9	June, 1955		
B . . .	120	18.8	6.1	89.1	15.7	87.8	June, July, 1955		
C . . .	..	19.14	4.7	77.7	9.2	78.6	August, 1954	
D . . .	120	18.8	4.6	71.5	11.9	70.4	January, Febru- ary, 1954		
E . . .	80	18.4	4.8	87.6	10.3	85.5	January, 1955		
F . . .	..	18.4	4.7	63.2	8.8	60.0	Febru- ary, 1956	

*Results obtained from A.T.I.R.A. Mill reports.

It would be observed that the samples of mill reeling yarn supplied by the Textile Commissioner's Office at Ahmedabad show on the whole an inferior yarn quality than that of the yarn of comparable count used by the composite mills. We have no figures for mill reeling yarn produced by exclusive spinning mills. Since the practice in composite mills is to dispose of the low quality yarn for reeling purposes, the inferior quality of the mill reeling yarn as obtained locally probably from composite mills, could be readily understood. The mill reeling yarns which may be considered to be of a

high standard quality are produced in south India and these would be tested as soon as they are received. It may be summarised that adequately trained spinners can produce on the improved Ambar Charkha, 20's yarn from pure *Vijaya* cotton of a quality comparable with the 19s-20s yarn produced by the composite mills for their own consumption, out of cotton mixings which are cheaper than the material used for the Ambar Charkha, to the extent of 3 to 12 per cent. as seen from the limited data at present at our disposal.

No trials have been made to determine whether with the cotton mixings of comparable quality as used in composite mills, Ambar Charkha can produce yarn of a quality comparable to that produced by the mills.

Comparative results of the weaving performance on the handloom, with the Ambar yarn and the Mill yarn are shown in Table II:

TABLE II
PREPARATORY AND WEAVING PERFORMANCES OF THE AMBAR AND THE
MILL REELING YARNS

Experimental Design	First Set		Second Set	
	Mill Reeling Yarn	Ambar Yarn	Mill Reeling yarn	Ambar Yarn
Period	14th to 22nd February, 1956	17th to 23rd February, 1956	24th to 27th February, 1956	28th Feb. to 1st March 1956
Number of hanks used for Warp.	32	27	28	30
Number of hanks used for Weft	28	23	27	29
Breaks per hank of warp while winding prior to warping	3.8	3.5	3.2	2.9
Breaks per hank of warp while warping	0.28	0.26	0.14	0
Breaks per hank of warp while sizing	0.47	0.11	0.36	0.07
Breaks per hank of weft while filling pirns	3.4	2.1	3.7	2.3
Length of cloth woven in yards	13.75	11.75	11.75	12.0
Time for weaving	9 hours	6 hours	7.5 hours	7.25 hours
Rate of weaving : Yards per hour	1.53	1.96	1.57	1.66
Breaks per loom hour	0.55	0	0.40	0.55
Ends/picks	46/46	46/46	46/46	46/46

As the number of experiments conducted on one handloom at A.T.I.R.A. are very limited, no significance can be attached to the difference in the weaving performance figures in the Table.

(Sd.) B. K. VAIYDA,

Asstt. Director.

(Sd.) B. R. RAMASWAMY,

Senior Scientific Officer,

Liaison Division.

AHMEDABAD;

The 24th March, 1956.

III

A.T.I.R.A. REPORT

INTERIM SUMMARY REPORT ON THE PERFORMANCE OF THE AMBAR CHARKHA

PART II

12'S COUNT YARN AND CLOTH TEST RESULTS OF 20'S COUNT YARN

After the study of the performance of the 'Ambar Charkha in 20's count, the work at A.T.I.R.A. between 20th February, 1956 and 5th March, 1956 was concerned mostly with 12's count yarn spun from Wagad bale cotton purchased from a local mill. The five sets of Charkhas used and the corresponding operators were the same as before. As in the first study the whole processing sequence was standardised with seven processes through the *Belni* instead of eight used in the 20's count. The different characteristics studied qualitatively were the roving hank, its irregularity, yarn count,lea strength, yarn irregularity, twist per inch, spinning breaks, continuous winding breaks the visual appearance etc. 20 yards of square cloth was woven, with the yarns spun on the handloom and the weaving performance particulars were noted. Various physical tests are being conducted at present on the cloth made. For comparative purposes about ten samples of mill reeling yarns received from the Textile Commissioner's office at Ahmedabad were also tested for all the relevant characteristics. One sample of mill reeling yarn purchased locally has also been woven on the same handloom for judging the relative weaving performance of the two yarns as also for assessing the qualities of the two cloths. Detailed production records were made in the spinning and the weaving operations.

Some of the important performance figures of the Charkha Set are shown in Tables I to XI given below:—

TABLE I

FIBRE LENGTH ANALYSIS (BY BERA SORTER) OF THE BALED WAGAD
COTTON USED IN THE EXPERIMENT.

Effective length in inches	Mean length in inches	Short fibre percentage	Coefficient of variation in length
0.96	0.78	9.4	29.2

ATIRA REPORT

TABLE II

AVERAGE HANK AND IRREGULARITY OF ROVING MADE BY EACH WORKER
ON THE Belni.

Charkha Set No.	Roving hank			Irregularity		
	Av.	Min.	Max.	Av.	Min.	Max.
1 . . .	1.49	1.44	1.59	7.43	6.46	8.66
2 . . .	1.55	1.51	1.59	6.91	5.48	8.36
3 . . .	1.58	1.49	1.65	7.21	5.98	9.61
4 . . .	1.59	1.51	1.68	6.86	5.60	8.31
5 . . .	1.56	1.51	1.60	7.22	5.30	8.73

TABLE III

END BREAKS IN SPINNING PER HOUR ON FOUR SPINDLES AND REELING BREAKS
PER POUND OF YARN.

Charkha Set No.	Yarn Count	Spinning breaks	Reeling breaks	Average weight and length of yarn per bobbin	
				Weight/ tolas	Length in yards
1	11.8	3.1	19	0.62	153.6
2	11.7	1.4	15	0.72	176.9
3	12.4	4.4	13	0.81	210.9
4	11.8	2.0	12	0.71	175.9
5	12.5	3.0	15	0.85	223.1

TABLE IV

COUNT, LEA STRENGTH AND THEIR VARIATION IN THE AMBAR YARNS.

Yarn particulars	No. of tests.	Average count.	Coefficient of varia- tion in count	Average lea strength in lbs.	Coefficient of varia- tion in lea strength	Corrected strength
Charkha Set 1 .	32	11.8	8.3	94.7	20.7	91.9
Charkha Set 2 .	48	11.7	5.4	104.5	12.1	100.6
Charkha Set 3 .	48	12.4	7.6	99.5	14.2	103.9
Charkha Set 4 .	52	11.8	5.1	103.7	12.8	101.2
Charkha Set 5 .	30	12.5	7.9	91.7	13.9	97.5

TABLE V
IRREGULARITY IN THE AMBAR YARN

Yarn particulars	No. of tests	Per cent mean deviation	
		At low speed	At high speed
Charkha Set 1	21	14.66	16.15
Charkha Set 2	31	14.08	15.93
Charkha Set 3	31	14.08	17.79
Charkha Set 4	29	14.84	16.44
Charkha Set 5	20	15.00	19.48

TABLE VI
AVERAGE TURNS PER INCH AND ITS COEFFICIENT OF VARIATION IN THE AMBAR YARN

Yarn particulars	No. of tests	Average T.P.I.	Coefficient of variation in T.P.I.
Charkha Set 1	40	12.0	19.15
Charkha Set 2	45	15.6	10.64
Charkha Set 3	47	14.8	14.01
Charkha Set 4	47	14.8	14.70
Charkha Set 5	36	14.9	13.40

TABLE VII
THE NUMBER OF CONTINUOUS WINDING BREAKS OBSERVED WITH THE AMBAR YARNS UNDER HIGH CONSTANT TENSION.

Yarn particulars	Breaks/pound of yarn wound
Charkha I	33.3
Charkha II	30.2
Charkha III	36.7
Charkha IV	42.4
Charkha V	47.4

(Rate of winding : 10 yards/minute on the Atwood Re-draw machine).
6 M. of Production.

TABLE VIII

PREPARATORY AND WEAVING PERFORMANCE OF THE AMBAR YARN.

Particulars	Ambar First Set	Yarn Second Set
No. of hanks used for warp	21	23
No. of hanks used for weft	22	23
Breaks per hank of warp while winding prior to warping	0.57	1.13
Breaks per hank of warp while warping	0.28	0.26
Breaks per hank of warp while sizing	0.33	0.26
Breaks per hank of weft while filling pirns	0.68	0.52
Length of cloth woven in yards	11.0	12.5
Time for weaving	6.5 hrs.	6.0 hrs.
Rate of weaving/hour—		
(i)	1.69 yds.	2.08 yds.
(ii)	0.68 yds.	0.79 yds.
Breaks per loom hour	0.77	0.67
Ends/picks	40/40	40/40

(i) Only weaving (ii) Weaving including preparatory processes.

TABLE IX

PERCENT WASTE REMOVED IN THE *Dhunai Modhia* AND THE *Belni*.

Machine	Minimum	Maximum	Average per cent waste
<i>Dhunai Modhia</i>	7.2	14.0	9.6
<i>Belni I</i>	4.3	12.5	8.9
<i>Belni II</i>	2.6	9.1	5.9
<i>Belni III</i>	2.9	6.2	4.6
<i>Belni IV</i>	1.3	8.5	4.7
<i>Belni V</i>	4.1	10.0	7.5
AVERAGE	3.0	9.3	6.3

Further details of the study made on 12's count yarn and the cloth test of 20's count yarn will be given in the final consolidated report along with the necessary comments in due course.

(Sd.) B. R. RAMASWAMY,
Senior Scientific Officer,
Liaison Division.

AHMEDABAD;
The 18th March, 1956.

TABLE X
YARN PRODUCTION ON AMBAR CHARKHA
Effective time required in hours to process one pound of cotton through: (1) Dhunai Modhia, (2) Belni and (3) Charkha and number of hanks of 12's count produced for eight hours effective working on (3), (2) ÷ (3) and (1) ÷ (2) + (3)

(1) Dhunai Modhia				(2) Ambar Belni				(3) Ambar Charkha				(2) + (3)		(A.B. + A.C.)		(1) - (2) + (3)		(D.M. + A.B. + A.C.)				
Work ker No.	Min. Hrs.	Max. Hrs.	Aver- age hours	Min. Hrs.	Max. Hrs.	Aver- age hours	Wor- ker No.	Min. Hrs.	Max. Hrs.	Aver- Hanks/ 8 effec- tive hrs.	Wor- ker No.	Min. Hrs.	Max. Hrs.	Aver- Hanks/ 8 effec- tive Hrs.	Wor- ker No.	Min. Hrs.	Max. Hrs.	Aver- Hanks/ 8 effec- tive Hrs.	Wor- ker No.	Min. Hrs.	Max. Hrs.	Aver- Hanks/ 8 effec- tive Hrs.
1	2.6	4.9	3.2	1	3.3	5.0	4.1	1	1.9	4.0	2.7	35.6	1	5.2	9.0	6.8	14.1	1	7.8	13.9	10.0	9.6
				2	6.7	8.5	7.6	2	3.9	12.2	7.4	13.0	2	10.6	20.7	15.0	6.4	2	13.2	25.6	18.2	5.3
				3	6.0	9.2	7.5	3	3.1	10.7	5.3	18.1	3	9.1	19.9	12.8	7.5	3	11.7	24.0	16.0	6.0
				4	4.1	7.7	5.6	4	2.4	5.9	3.8	25.3	4	6.5	13.6	9.4	10.2	4	9.1	18.5	12.6	7.6
				5	5.6	7.8	6.4	5	3.3	5.3	4.5	21.3	5	8.9	13.1	10.9	8.8	5	11.5	18.0	14.1	6.8

(1) In the Ambar Belni seven processes were used in making the roving of required hank from the lap instead of the eight processes used in case of 20's count. This shortened process, thus, enabled a decrease in processing time on the Belni.

(2) In the Ambar Charkha the front roller delivery was increased by 16 per cent over the one used for spinning 20's yarn in order to impart the lower twist needed for the 12's count yarn.

TABLE XI

Ends and picks per inch and the Warp/Weft Tensile Strength and Elongation particulars of cloth (Grey) woven from 20's Ambar and mill reeling yarns.

Particulars	First set		Second set	
	Ambar Yarn	Mill Reeling yarn	Ambar yarn	Mill Reeling yarn
Average ends per inch	47.0	47.0	48.0	47.0
Average picks per inch	46.0	46.0	51.0	49.0
Warpwise strength in lbs.	67.5	63.6	68.9	63.4
Coefficient of Variation in warpwise strength	10.3	8.9	10.6	11.4
Percent elongation	6.9	5.6	6.3	6.3
Weftwise strength in lbs.	65.8	57.1	74.6	63.7
Coefficient of variation in weftwise strength	12.3	9.4	9.8	10.0
Percent elongation	5.2	5.5	8.8	7.5

Length of cloth test specimen : 8"

Width of cloth test specimen : 2"

IV

REPORT ON THE PERFORMANCE OF THE AMBAR CHARKHA PART I, (with appendices A, B, C, and D)

20's Count Yarn

1. Preliminary Work and Modifications

The Ambar Charkha set consisting of three units, *Dhunai Modhia*, *Belni* and Charkha, was received at A.T.I.R.A. on August 10, 1955, through Akhil Bharat Sarva Seva Sangh, Wardha, who despatched it at the instance of the Ministry of Commerce and Industry, Government of India for study and experiments as well as for the ultimate testing of its spinning performance. Since then in close collaboration with the workers provided by the Ambar Charkha Samiti of the Sarva Seva Sangh, A.T.I.R.A. has been carrying out spinning trials with a number of cottons. A series of preliminary experiments were done by spinning on the Charkha yarns of 18's, 24's and 30's count from the *Surti* and *Vijay* varieties of baled cottons. Extensive physical tests for the lea strength, count, evenness and appearance, were made on these yarns and this programme lasted till about the end of November. Some idea of production capacity of the various units of the Charkha set, was also obtained during this time. The preliminary work on the Charkha indicated that the quality of the yarn spun could be improved by certain modifications of some of the parts in all the three units of the set, as well as by adopting certain alternative procedures in processing, particularly on the '*Belni*' machine. These indications were followed up quantitatively by numerous tests on mill rovings, when it was clear that

variations in yarn counts, strength and evenness could be markedly reduced by the introduction of the mechanical modifications proposed and adoption of the revised methods of processing. The final models of the Charkha units, incorporating most of these modifications, were approved by the Ambar Charkha technicians at a meeting held under the auspices of the Ambar Charkha Samiti, on February 18 and 19 at Ahmedabad. Complete machine drawings of all the parts used in the three units were made and photostat copies of various drawings on 32 sheets made up in form of two folders were sent out to the All India Khadi and Village Industries Board, Bombay.

2. Test Programme and Procedure

The spinning performance of the Charkha and the weaving quality of the yarns produced are now being regularly studied by a series of designed experiments on five spinning sets (each set consisting of a *Belni* and a Charkha only attended by one worker) and one handloom, installed for the purpose in a special shed (unconditioned) put up at A.T.I.R.A. by the Samiti. The *Vijay* or the *Wagad* variety of baled cotton purchased from local mills was opened out by only one worker on a single *Dhunai Modhia* in quantities required at a time, to feed all the five Charkha sets. Yarns of 20's and 12's counts were then spun respectively from the *Vijay* and the *Wagad* cottons. About twenty yards of square cloth with the requisite number of ends and picks has been woven from each count of yarn. For comparison, mill yarns of corresponding counts purchased locally and obtained through the Textile Commissioner's Office at Ahmedabad, were tested for their quality and weaving performance on the same loom. The physical tests to which the Ambar Charkha as well as the Mill yarns were subjected were lea strength, count, twist per inch and their variations, uniformity, visual appearance and continuous winding breaks under tension. The cloth made from the two sets of yarns is now being tested for tensile strength, bursting strength, the number of ends and picks before and after desizing and for shrinkage on washing.

3. Points of Information Gathered

The modifications introduced in some of the constructional details of the units in the Charkha set and in the methods of processing the cotton through the various machines are described in Appendix 'A', which also shows in Tables I, II and III, the improvements brought about in the fibre and yarn qualities of the cotton processed through the machines after the introduction of some necessary modifications.

In Appendix 'B', Table I gives the fibre length characteristics of the *Vijay* bale cotton used for spinning 20's count yarn on the Ambar Charkha, while Table II shows the hank and the irregularity values of the rovings produced on the *Belni*. Table III shows end-breaks in spinning and reeling and yarn content per bobbin. Tables IV to VII give results of comparative tests carried out for the Ambar yarn spun and the mill reeling yarn samples, one (a) of which was purchased locally and twelve others (b) from twelve mills obtained through the Textile Commissioner's Office at Ahmedabad. Corresponding count and strength results for six samples of yarn (c) produced by six

different A.T.I.R.A. member mills, for their own consumption, have been obtained from A.T.I.R.A. records and have been also included in the Table IV. These tables deal with the spinning breaks, yarn count and lea strength, yarn irregularity and twist as well as continuous yarn winding breaks at high tension. Table VIII shows the variation observed in a designed experiment, of the yarn qualities as influenced by personal, mechanical and environmental conditions.

Weaving performance of the Ambar yarn and the Mill reeling yarn sample (a), showing figures for the number of yarn breaks at various stages and the rate of weaving is given in Table IX.

The amount of waste produced at various stages in spinning and weaving and the percentage of total time utilised in both these operations are shown by the respective figures given in Table X and XI (A and B).

Finally production figures in spinning, expressed in effective hours per lb. and hanks per eight effective hours on an average, for each of the five workers and as observed in their day to day outputs for 12 days, are shown in Table XII (A, B, C, and D and E). Specimens of the Forms A, B, C, and D provided to each spinner for the day to day record of his work; (i) opening and carding (ii) Drawing-Roving (iii) Spinning and (iv) Reeling, are given at the end of the Appendix 'B'.

Appendix C shows the Average Daily Production Charts (Hanks per eight hours effective working) for (i) Charkha only (ii) Belni and Charkha, and (iii) Dhunai Modhia, Belni and Charkha combined.

Appendices D₁ to D₃ are issued separately as follows:—

D₁ irregularity Records of the Ambar Rovings, the Ambar Yarns and the Mill Reeling Yarns.

D₂ Appearance photographs of the Ambar and the Mill Reeling Yarns.

D₃ Machine Drawings of the Ambar Set Units and their parts:—

PART I:—Dhunai Modhia and Belni.

PART II:—Ambar Charkha

4. Consolidated Summary of the Results

A consolidated summary of all the pertinent results compiled from various tables of Appendix B, is made up for convenience of reference, in the five tables given below. They deal with the (1) quality particulars of cotton fibres and roving, comparative qualities of the Ambar and the Mill yarns in (2) spinning and in (3) weaving, (4) percent waste and time utilization in spinning and weaving and (5) production in spinning and weaving. Significant points to be noted are shown in the remarks column against each of the items included in the tables.

TABLE I
Cotton Fibres and Roving

Material	Quality particulars	Remarks	Reference	
			Appendix	Table
Vijay Bale Cotton	Mean Fibre length 0.88 inch.	No significant damage was done to fibres during the opening process on the improved <i>Dhunai Modhia</i> (a).	B	I
	Effective fibre length 1.00 inch		A	I
Rovings made on Ambar Charkha.	(1) Average Hank Range of 2.44—2.72	No abnormal variations were noticed between machine to machine and from day to day. (b).	B	II
	(2) Average irregularity 8.2 Range of irregularity. 7.2—9.5			

- (a) The *Dhunai Modhia* in its present improved form does not cause any significant damage to cottons of shorter staple like *Wagad* and *Vijay*. However, the long staple cotton like *Coz*, *Rajpalayam*, etc., seem to suffer damage in order to minimise which some further modifications are being tried out in the unit.
- (b) As mentioned before process standardisations by way of number of passage doublings and draft on *Belni* is most important if the roving hank variation and its irregularity is desired to be very low.

TABLE II
Comparative spinning qualities of the Ambar and the Mill Yarns

Quality particulars	Ambar yarn	Mill Yarns			Remarks	Reference	
		(a)*	(b)*	(c)*		App.	Table
(1) End breaks in spinning per hour on four spindles Range.	0.64—2.24	..	..	..	One out of five Charkhas showed abnormally large number of spinning breaks. The average breakage rate is however not much higher than what is observed in a normal spinning mill for the count in consideration.	B	III
(2) Count : Average Range C.V. (p.c.)	19.6 19.7—19.9 7.0 P.C.	20.0 .. 4.3	.. 17.4—20.6 4.5—8.5	.. 18.4—19.1 3.1—6.1		B	IV

Quality particulars	Ambar yarn	Mill Yarns			Remarks	Reference	
		(a)*	(b)*	(c)*		App.	Table
(3) Lea strength corrected for 20's	82.4	75.8	..	..	The Ambar yarn stands in good comparison to the Mill Reeling yarns though the lot (b) is inferior to it which may be due to the various reasons listed in the Appendix B (Table IV).	B	IV
Average							
Range	75.5—85.3	..	36.8	60.0—			
			67.4	87.8			
C.V. (p.c.)	12.6	11.2	7.3—	8.8—			
			12.6	15.7			

(4) Irregularity

(p.c.)

Low speed	14.6	14.1	13.3—	..	Ambar yarn comparable with the mill reeling yarn (a).	B	V
			18.7				
High	16.4	16.0	15.2—	..		C ₁	FIGS
			21.2				

(5) Turns per inch	19.3	19.8	..	..	Turns per inch as well as C.V. compare well with (a) and (b) type mill reeling yarns. Due to a greater possibility of spindle slippage a good check up is essential to keep the T.P.I. and its variation well within limits.	B	VI
Average	18.6—21.1	..	18.3—	..			
			22.1				
Range							
C.V. (p.c.)	20.7	18.8	13.2—	..			
			38.6				

(a) One 10 lb. sample of Reeling Yarn purchased locally.

(b) Twelve samples obtained from the Textile Commissioner's Office, Ahmedabad.

(c) Yarns from composite Mills.

Quality particulars	Ambar yarn	Mill yarns			Remarks	Reference	
		(a)*	(b)*	(c)*		App	Table
(6) Winding breaks per pound :					Ambar yarns and yarn (a) show fewer number of breaks as compared with (b) yarns. The Ambar yarn is not weaker than the mill reeling yarns	B	VII
Average	96.3	91.4	..	..	
Range	81.5—116.0	..	102.4—	..			
			156.7				
(7) Appearance	..	..	..	..	Ambar yarns are comparable with mill yarns (a) & (b).	C ₂	FIGS

(8) Variation Factors	Ambar Yarns			N.S.—Non-significant S. Significant.		
	Count	Strength	irregularity			
During 3 working days between 3 workers using 3 sets.				Influence of Mechanical factor may be reduced by further controls, whereas the personal factor depend on the aptitude, training, etc. of the worker.	B	VIII
Personal	(N.S.)	(S.)	(N.S.)			
Mechanical	(N.S.)	(N.S.)	(S.)			
Periodical	(S)	(N.S.)	(N.S.)			

TABLE III

Comperative Weaving Qualities of the Ambar and the Mill Yarns

Quality particulars	Ambar yarn	Mill yarn			Remarks	Reference	
		(a)	(b)	(c)		Appendix Table	
Breaks per Hank (Average)					Though Ambar yarns show fewer breakages no significance can be attached to the differences on account of the insufficient number of tests taken on only one handloom.	B	IX
Winding	3.20	3.50	..	..	
Warping	0.13	0.21	..	..	
Sizing	0.24	0.41	..	..	
Weft Filling	2.20	3.55	..	..	
Breaks per loom hour (Average)	0.28	0.47	..	..	

TABLE IV

Percent Waste and Time Utilisation in Spinning and Weaving

Particulars	Spinning (Ambar Yarn)	Weaving		Remarks	Reference	
		Ambar yarn	Mill yarn		App.	Table
Percent waste	(i) On <i>Dhunai Modhia</i> Average 8.2 Range 5.6—11.7 (ii) On <i>Belani</i> Average 4.9 Range 2.1—8.3	In warping and weft filling ing	0.67 0.79	It is possible to reduce waste in <i>Belani</i> as almost all the waste going out is avoidable if the worker is careful. Total spinning waste compares well with the avg. Mill spinning waste. Waste in weaving is not practically significant.	B	X

1	2	3	4	5	6	7	8
	<i>Ambar yarn</i>	<i>Ambar yarn</i>					
Percent time utilised at various stages per lb.					Possibility of reducing time by further improvements in <i>Dhunai Modhia Belani</i> and Charkha.		XIA
(i) <i>Dhunai</i>	24.9	(i) Winding	12.4				
<i>Modhia</i>		(ii) Warping	16.2				
(ii) Belani	43.8	(iii) Warping tying	11.2				
(iii) Charkha	30.4						
(iv) Reeling	0.9	(iv) Sizing	6.9				
		(v) Weft filling	16.5				
		(vi) Weaving	36.0				
		(vii) Misc.	0.8				

Percent time spent by each worker on Belani, Charkha and rest period

(i) On Belani	52.1
(ii) on Charkha	29.0
(iii) Rest	18.9

Rest period sufficient.

XIB

TABLE V
Production in Spinning and Weaving

Spinning		Weaving		Remarks	Reference
Production	Modhia + Belani Charkha + Charkha only	Production yards per hour			App. Table
		Weaving only	Preparatory + weaving		
		Ambar Mill yarn	Ambar Mill yarn		

Hours per lb.

Average	28.7	8.8
Range	18.3-40.2	4.9-13.8

Hanks per 8 hours—

Average	5.6	18.9
Range	4.0-8.9	12.4-34.9

1.81 1.55 0.65 0.61

Possibility of increase in production by improvements in *Dhunai Modhia, Belani and Charkha. Weaving comparable to mill yarns.*

B XII
A, B,
C, D
E.

C3 FIGS

5. Conclusions

The improvements brought about in the original models of the *Dhunai Modhia*, the *Belani* and the *Charkha* have been instrumental in raising considerably the quality of the yarn ultimately produced on the *Ambar Charkha*. However, for making a good yarn three conditions have to be fulfilled, namely:—

- (a) various parts in all the three units of the set should conform to the specified sizes laid down for each of them;
- (b) all the settings and other details should be carefully checked before and in course of working, by means of standard gauges supplied to each worker; and
- (c) processing instructions should be followed carefully. Experience with yarns spun at A.T.I.R.A., and elsewhere, when one or more of the above conditions were not observed, has shown that the yarn quality deteriorates, particularly in point of variations in count, strength and uniformity.

During the present series of experiments the main emphasis has been laid on the quality rather than on the quantity of yarn spun. The production figures in Table XII of Appendix B should be, therefore, accepted with the reservations that (a) the feeding material for each of the units in the set was prepared only according to the demand; (b) on account of the mechanical and processing modifications introduced in the *Belani* working, the workers were required to spend more than the normal amount of time on this machine; (c) the production rate of one out of the five workers was much below the average; and (d) the average daily production has been calculated only on the basis of twelve days' work.

Further modifications are being introduced in the *Dhunai Modhia* and the *Belani* for increased output.

Part II of this Report will deal with the quality of the *Ambar Yarn* of 12's count and cloth from 20's *Ambar Yarns*.

On behalf of A.T.I.R.A., it is a pleasure to thank Shri Krishandas Gandhi of the *Ambar Charkha Samiti* for placing at our disposal all the necessary facilities in men and materials. We are also thankful to Shri N. M. Mukerjee and his colleagues at the Textile Commissioner's Office, Ahmedabad, for readily responding to our request for various types of cotton and yarn samples from cotton mills in Ahmedabad and elsewhere.

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AHMEDABAD;

The 14th May, 1956.

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A.T.I.R.A. REPORT**6. APPENDIX 'A'***Machine and Process Modifications***1. Dhunai Modhia (Opener and Cleaner).**

Two modifications have been introduced in this machine which opens and cleans the cotton:

- (i) strips of used or new doffer vibrating combs from the mill carding engine have been substituted for the ordinary rough galvanised iron combs (xed around the cylinder) 3" in diameter;
- (ii) setting between the feed plate and the cylinder has been made adjustable from $1/32''$ to $3/32''$ while the shape of the feed plate nose has also been suitably changed.

These modifications were necessary in order to reduce the fibre-rupture. The Baer Sorter analysis result of the *Vijay* cotton samples opened with the old and modified units are given below:

TABLE I

Comparative performance of the old and the modified Dhunai Modhia

	Old Dhunai Modhia		Modified Dhunai Modhia	
	Bale cotton (Vijay)	Opened cotton	Bale cotton (Vijay)	Opened cotton
Effective length	0.99"	0.95"	1.01"	1.00"
Mean Fibre length	0.85"	0.80"	0.89"	0.87"
Percent Short Fibres	6.5	7.9	4.8	6.0

In processing cotton through the *Dhunai Modhia*, the following procedure is adopted:

- (i) the unopened cotton is made into a lap form, suitable for feeding the machine by first using the drawing arrangement of the "*Belani*". This lap is then fed, opened and cleaned only once through the *Dhunai Modhia*;
- (ii) the opened cotton is made into a lap form 6" wide and 2 feet long in a specially made box ready for being processed on the *Ambar Belani*.

3. *Ambar Belani (Drawing and Roving Machiner).*

This machine combines the work of the drawing and the speed frames used in the normal mill operation. The modifications introduced are:

- (i) two sizes of roller stands have been made, one to suit short-staple cotton with a centre to centre distance of $31\frac{1}{32}$ " and the other to suit the medium staple varieties, with a centre to centre distance of $36\frac{1}{32}$ ". The bottom fluted rollers are $7\frac{7}{8}$ " diameter in both the cases;
- (ii) racks with pegs have been provided as bottom supports of the top roller weighting springs, to simplify adjustment of spring pressure on the rollers. Ordinarily the pressure on the back roller is slightly higher than that on the front one;
- (iii) the feed table sides have been made smooth by fixing rounded wooden brackets thus avoiding the rubbing of the lap or sliver against the rough sides. Wooden guides (crescent shaped) have been used to effect a safer feeding of slivers and rovings;
- (iv) an extra pair of self weighted calender rollers set at a 45° inclination preceded by a funnel have been provided for use at the drawing stage prior to the insertion of twist. This device eliminates the irregularities formerly introduced in the rovings by an improper handling of the strands delivered.

At the same time it helps to make a proper consolidation of the fibres. During the latter operations of drawing and twisting the calender rollers are replaced by a polished, smooth tin plate and a funnel. The use of the plate eliminates the excessive ballooning of the delivered strand which would be otherwise detrimental to the quality of the roving;

- (v) The dimensions of various pulleys used are in conformity with those set as standards for the mass scale production;
- (vi) The draft is maintained constant at about 5.0.

In processing cotton through this machine the number of passages and the total doublings to be made are in accordance with the roving hank required. A variable number of passages and doublings are not desirable as the roller drafting irregularities increase with the number of processes, in spite of the doubling effect. For a hank of 2.5 to 5.0, 8 passages are desirable, while for a hank of 1.5, 7 passages are good enough. Whatever may be the number of passages the first drawing operation and the first drawing and twisting operation are always done with single and feed.

Since the draft in Belani is maintained constant at 5 the number of doublings used in the last one or two passages is decided on the roving hank delivered. For 20's yarn four processes have been used

in drawing operation with 1,4,4,4, ends up in each process, whilst the other four processes have been used for drawing and twisting with 1,4,4,4 ends up. The actual doublings in the 8th process is decided on the basis of the hank of roving made in the 7th process. Roving hank checks are thus made in both the 7th and the 8th processes.

3. Ambar Charkha (Spinning Frame)

The modifications in some constructional details of the Charkha are:—

- (i) roller stands suitable for processing short, medium and long staples have been used with centre to centre distance of $7/8''$, $1''$ and $1\frac{1}{8}''$ respectively. Both the bottom rollers are $6/8''$ diameter for short staple processing and $7/8''$ for processing medium and long staples;
- (ii) lappet guides have been made adjustable with respect to the centre of ring and spindle. With the help of a simple spindle gauge it is easy to centre the spindles very quickly. Lappet guides can be lifted up for easing piecing and doffing;
- (iii) the angle of roller inclination to the horizontal has been fixed at 35° ;
- (iv) the traverse length of the ring rail is $3''$. An antifriction bowl has been provided to follow the cam. Distance between the front top tip of the roller stand and ring rail at its bottom most and top most points have been fixed at 8.5 and 5.5 inches respectively;
- (v) all the four spindles are made to work in one horizontal plane by suitable adjustments of the heights of the spindle cord tension pulley from the spindle wharve level;
- (vi) the dimensions of the various pulleys used are in conformity with the standards set for the mass scale production;
- (vii) as in *Belani*, racks with pegs have been provided as bottom supports of top roller weighting springs.

In the final processing of cotton on the Charkha, single ends of roving are fed while the draft is maintained at 8 (for 12's and 20's counts) and the rate of yarn delivery at about 13 to 14 yards per minute.

The yarn obtained is wet reeled (to allow for twist setting) into hanks on a wrap reel, dried sufficiently for three days before testing under standard conditions of temperature and humidity.

Figures for the yarn strength, count and their variations as well as yarn irregularity or unevenness before and after the introduction of the modifications are shown in Tables II and III below:

TABLE II

Average Count, Lea Strength and coefficient of Variation in Count and Strength of yarn before and after the introduction of modifications.

Yarn	No. of tests	Average		Coefficient of variation	
		Count	Strength	Count	Strength
Preliminary experiments (Vijay cotton 18's nominal)	68	17.6	61.2	8.0	19.2
	64	18.4	56.0	6.0	18.9
Final tests (Vijay Cotton 20's nominal)	260	19.6	84.6	7.0	12.6

(The average roving hank in the final test: 2.5)

REMARKS: Significant increase in yarn strength observed even with finer count by the introduction of various improvements in the units is apparent.

TABLE III

Yarn Evenness before and after the introduction of modifications

Yarn	Percent mean deviation from normal	
	At low speed	At high speed
Preliminary experiments (Vijay cotton 18's)	21.2	23.8
Final test (Vijay cotton 20's)	14.5	16.4

REMARKS: Substantial decrease in unevenness of yarn is observed after effecting the modifications.

7. APPENDIX B

TABLE I

Fibre Length Analysis (By Baer Sorter) of the baled Vijaya cotton used in the experiments

Effective length in inches	Mean length in inches	Short fibre percentage	Coefficient of variation in length
1.00	0.88	5.20	21.53

NOTE: Effective length is the nearest approach to the classers staple length.
Mean length is the arithmetic mean of the length of all the fibres in the sample.
Short fibre percent includes all fibres in the sample shorter than about half the effective length.
Coefficient of variation in length is a measure of non-uniformity in the length of the fibres. The larger this value the greater the non-uniformity in fibre length.

TABLE II
Average hank and irregularity of roving made by each worker on the belni.

Charkha Set No.	*Roving Hank			Irregularity (P.C.)		
	Average	Min.	Max.	Average	Min.	Max.
I	2.51	2.41	2.73	8.50	7.49	10.85
II	2.56	2.45	2.69	8.14	6.97	9.13
III	2.60	2.45	2.78	8.50	7.38	9.58
IV	2.56	2.41	2.77	8.20	6.87	9.41
V	2.57	2.47	2.64	7.83	7.17	8.35

*Irregularity of Roving was tested on a Fielden Walker Evenness Tester at 5 feet material speed per minute.

TABLE III
End breaks in Spinning per hour on four spindles and Reeling breaks per pound of yarn

Charkha Set No.	Yarn count	Spinning breaks	Reeling breaks	Average weight and length of yarn per bobbin	
				Wt/Tolas	Length/Yds.
I	18.0	0.64	12.4	0.44	175.6
II	19.7	0.85	17.4	0.42	173.7
III	19.8	2.24	20.1	0.44	182.9
IV	19.9	0.85	14.7	0.48	200.6
V	19.8	1.08	11.2	0.47	195.4

TABLE IV
Count, lea strength and their variations in the Ambar and the Mill yarns

Yarn particulars	No. of tests.	Average count	Coefficient of variation in count	Average lea strength in lbs.	Coefficient of variation in lea strength	Corrected strength	Remarks
<i>Ambar Yarn</i>							
Charkha Set I	48	19.0	10.3	81.6	9.4	75.5	
Charkha Set II	48	19.7	6.7	85.0	13.0	83.1	
Charkha Set III	54	19.8	6.7	86.6	13.8	85.3	
Charkha Set IV	48	19.9	6.2	83.8	14.0	83.1	
Charkha Set V	62	19.8	5.0	86.0	12.9	84.8	
Corresponding Mill Reeling Yarn	160	20.0	4.3	75.8	11.2	75.7	

Yarn particulars	No. of tests	Average count	Coefficient of variation in count	Average lea strength in lbs.	Coefficient of variation in lea strength	Corrected strength	Remarks
Mill Yarn* for hand- looms 20's count Mill							
Sr. No.							
65 . . .	20	18.6	5.2	57.0	8.3	50.6	
66 . . .	20	20.5	6.9	64.8	9.8	67.4	
67 . . .	20	19.3	6.1	58.8	8.3	55.2	
68 . . .	20	18.6	7.4	53.6	10.6	47.3	
69 . . .	20	19.6	4.3	60.3	11.6	58.4	
70 . . .	20	17.4	5.4	47.8	9.8	36.8	
71 . . .	20	19.4	4.5	64.6	9.5	61.4	
72 . . .	20	20.3	7.6	56.9	7.3	58.5	
73 . . .	20	20.6	8.5	48.8	12.6	51.2	
74 . . .	20	20.1	5.8	60.3	9.3	60.6	
75 . . .	20	20.1	8.0	53.8	12.1	54.0	
81 . . .	40	19.7	4.8	79.7	11.8	77.9	

*Composite mill reeling yarn samples received from the Textile Commissioner's Office at Ahmedabad.

Yarn particulars	No. of tests	Average count	Coefficient of variation in count	Average lea strength in lbs.	Coefficient of variation in lea strength	Corrected strength	Remarks
Mill Yarn for mill-looms*							
19's Count							Period
A . . .	190	18.8	3.1	76.3	9.02	74.9	June '55
B . . .	120	18.8	6.1	89.1	15.7	87.8	June
C . . .	..	19.14	4.7	77.7	9.2	78.6	July '55
D . . .	120	18.8	4.6	71.5	11.9	70.4	Aug. '54
E (18's) . . .	80	18.4	4.8	87.6	10.3	85.5	January
F . . .	..	18.4	4.7	63.2	8.8	60.0	Feb. '54
							Jan. '55
							Feb. '56

*Data obtained from the A.T.I.R.A. Records for some of the Member Mills.

NOTE : In composite mills it is the general practice to use cotton mixings rather than pure varieties of cottons for yarns required for their own consumption as well as those sold for handloom purposes (Reeling yarn). The lower quality yarn produced by the mills is also sold out as reeling yarns. Their inferior quality could therefore be readily understood.

TABLE V

*Irregularity in the Ambar and the Mill Yarns**

Yarn particulars	No. of tests	Per cent mean deviation	
		At low speed	At high speed
<i>Ambar Yarn</i>			
Charkha I	30	14.70	16.47
Charkha II	31	14.38	16.30
Charkha III	31	15.21	16.24
Charkha IV	31	14.30	16.21
Charkha V.	38	14.24	16.70
Mill Reeling yarn	32	14.13	15.98
<i>20's Mill yarn for Handloom:</i>			
65	6	15.23	18.02
66	6	13.48	15.17
67	6	14.80	17.96
68	5	17.29	18.05
69	6	14.64	15.48
70	6	18.73	21.21
71	6	14.20	15.74
72	4	13.30	16.46
73	12	14.97	17.48
74	6	14.18	16.43
75	6	15.18	18.16
81	13	14.47	15.92

*Yarn irregularity was tested on a Fielden Walker Irregularity Tester.

Low speed : 5 ft./min.

High speed : 50 ft./min.

TABLE VI

Average Turns per Inch and its coefficient of variation in the Ambar and the Mill Yarn

Yarn particulars	No. of tests	Average turns per inch	Coefficient of variation in turns per inch
<i>Ambar Yarn</i>			
Charkha I	34	21.1	22.18
Charkha II	45	18.8	18.60
Charkha III	45	18.0	25.18
Charkha IV	45	19.3	20.72
Charkha V	45	18.6	16.86
Mill Reeling Yarn	90	19.8	18.83
<i>20's Mill Yarn for Handloom:</i>			
65	23	20.8	19.44
66	21	19.7	18.05
67	23	19.3	38.62
68	28	20.1	17.90
69	21	18.7	13.58
70	22	22.1	26.51
71	22	18.8	13.66
72	29	21.9	17.21
73	24	20.1	16.20
74	24	18.6	13.18
75	22	18.3	13.66

TABLE VII

The number of continuous winding breaks observed with the Ambar and the Mill Yarns under High Constant Tension*

Yarn particulars				Breaks per pound of yarn wound
<i>Ambar Yarn</i>				
Charkha I	.	.	.	116
Charkha II	.	.	.	97.9
Charkha III	.	.	.	81.5
Charkha IV	.	.	.	101.8
Charkha V	.	.	.	84.5
Mill Yarn	.	.	.	91.4
<i>20's Mill Yarn for Handloom</i>				
65	.	.	.	156.7
66	.	.	.	137.8
67	.	.	.	102.4
68	.	.	.	121.5
69	.	.	.	111.1
70	.	.	.	110.3
71	.	.	.	115.7
72	.	.	.	116.8
73	.	.	.	146.8
74	.	.	.	115.2
75	.	.	.	102.6

*Rate of winding : 110 yds./min. on the Atwood Redraw Machine.

TABLE IX

Preparatory and weaving performances of the Ambar and the Mill Reeling Yarns

Period	First Set*		Second Set*	
	Mill Reeling yarn	Ambar yarn	Mill Reeling yarn	Ambar yarn
	14th to 22nd February 56	17th to 23rd February 56	24th to 27th February 56	28th Feb. to 1st March 56
Number of hanks used for warp	32	27	28	30
Number of hanks used for weft	28	23	27	29
Breaks per hank of warp while winding prior to warping	3.8	3.5	3.2	2.9
Breaks per hank of warp while warping	0.28	0.26	0.14	0
Breaks per hank of warp while sizing	0.47	0.11	0.36	0.37
Breaks per hank of weft while filling pirns	3.4	2.1	3.7	2.3
Length of cloth woven in yards	13.75	11.75	11.75	12.0
Time for weaving	9 hrs.	6 hrs.	7.5 hrs.	7.25 hrs.
Rate of weaving : Yds., per hour (i)	1.53	1.96	1.57	1.66
(ii)	0.63	0.70	0.59	0.60
Breaks per loom hour	0.55	0	0.40	0.55
Ends/picks	46/46	46/46	46/46	46/46

(i) Only weaving*; (ii) Weaving including preparatory processes.

*In the first set, the Ambar and Mill Reeling Yarns were woven on the handloom by one Weaver, while in the Second Set another Weaver worked on the same loom with a second pair of the Ambar and the Mill Yarns.

TABLE X

Percent waste removed in the Dhunai Madhia and the Belni

Machine								Minimum	Maximum	Average percent waste
Dhunai Modhia	.	.	.	.	.	.	.	5.6	11.7	8.2
Belani I	.	.	.	.	.	.	.	3.0	10.2	5.4
" II	.	.	.	.	.	.	.	2.1	6.7	4.3
" III	.	.	.	.	.	.	.	2.4	11.8	5.7
" IV	.	.	.	.	.	.	.	..	5.3	4.1
" V	.	.	.	.	.	.	.	2.9	7.5	5.1
Average	.	.	.	.	.	.	.	3.1	8.3	4.9

Percent waste in processes preparatory to weaving

Particulars	I Set		II Set	
	Mill Reel- ing yarn	Ambar yarn	Mill Reel- ing yarn	Ambar yarn
Waste of warp and weft (During warping and weft filling respectively).	0.78	0.75	0.80	0.59

सत्यमेव जयते

INDIVIDUAL RECORDS

Variation factors with three workers and three charkhas during three days

[illegible]

TABLE VIII (B)

Significant Test between individuals, Machines and Days

Worker	Count	Corrected strength	Irregu- larity	Charkha sets	Count	Corrected strength	Irregu- larity	Days	Count	Corrected strength	Irregu- larity	
N	.	19.7	81.9	13.9	III	19.8	87.1	14.1	1	20.3	86.9	14.2
B	.	20.0	80.9	14.0	IV	19.6	80.8	13.1	2	19.2	83.2	13.8
I	.	19.4	88.7	14.0	V	19.5	83.7	14.7	3	19.3	81.4	15.9

TABLE XI (A)

Average percent time spent by each worker on the Belani and the Charkha allotted to him in 7½ hours daily working

Worker on	Percent time spent on						
	Belani (Process- ing)	Mainte- nance	Misc.	Charkha (Process- ing)	Mainte- nance	Misc.	Rest
*Charkha II . . .	40.2	4.0	3.2	21.5	4.6	7.0	19.5
Charkha III . . .	50.5	2.5	5.7	16.5	1.0	6.7	17.1
Charkha IV . . .	44.2	4.4	3.8	20.1	3.1	6.1	18.3
Charkha V . . .	41.9	1.7	6.3	19.5	1.9	8.1	20.6
Average . . .	44.2	3.1	4.8	19.4	2.6	7.0	18.9

*Charkha I omitted because the worker concerned attended also to other supervision duties.

TABLE XI (B)

Amount of time spent at various stages in spinning and weaving

Spinning

12. lbs. Vijay cotton spun to 20's count during 12 days from January 30, to February 11, 1956. Effective operative hours and percentage of time spent in processing 1 lb. cotton.

Operation	No. of Machines	No. of workers	Effective operative hours			Average percentage time
			Minimum	Maximum	Average	
(1) Opening on Dhu- nai Modhia . . .	1	1	5.9	8.2	7.2	24.9
(2) Drawing to roving on Ambar Belani . . .	5	5	10.8	13.9	12.7	43.8
(3) Spinning on Am- bar Charkha . . .	5		6.6	11.9	8.8	30.4
(4) Reeling one hank of 20's yarn . . .	1	1	..	..	0.25	0.9

WEAVING

25 yds. of cloth with 46/46 reeds and picks and woven from 20's count Ambar yarns by two workers on one handloom.

Percent time spent to weave 25 yds. cloth.

Operation	Average percentage time
1. Winding prior to warping . . .	12.4
2. Warping . . .	16.2
3. Warp Tying . . .	11.2
4. Sizing . . .	6.9
5. Weft filling . . .	16.5
6. Weaving . . .	36.0
7. Miscellaneous . . .	0.8

TABLE XII (A)

YARN PRODUCTION ON AMBAR CHARKHA

Effective time required, in Hours, to process one pound of cotton through

- (1) Dhunai Modhia (Cleaning & Opening)
 (2) Belani (Drawing & Roving) and
 (3) Charkha (Spinning).

(1) Dhunai Modhia				(2) Ambar Belani				(3) Ambar Charkha				(2) (3) A.B. A.C.				(1) (2) (3) D.M. A.B. A.C.			
Worker No.	Min. Hrs.	Max. Hrs.	Avg. Hrs.	Worker No.	Min. Hrs.	Max. Hrs.	Avg. Hrs.	Worker No.	Min. Hrs.	Max. Hrs.	Avg. Hrs.	Worker No.	Min. Hrs.	Max. Hrs.	Avg. Hrs.	Worker No.	Min. Hrs.	Max. Hrs.	Avg. Hrs.
1	5.1	8.2	7.2	6.9	16.0	10.8	1	4.5	14.0	9.2	1	11.4	29.6	20.0	1	17.3	37.8	27.2	
2				8.3	20.0	13.4	2	7.5	21.3	11.9	2	15.8	40.9	25.3	2	21.7	49.1	32.5	
3				5.2	20.5	13.6	3	3.7	11.8	7.8	3	8.9	31.9	21.4	3	14.8	40.1	28.6	
4				8.3	20.4	13.9	4	4.2	11.4	8.5	4	12.5	31.4	22.4	4	18.4	39.6	29.6	
5				9.0	16.1	12.0	5	4.4	10.4	6.6	5	13.4	26.1	18.6	5	19.3	34.3	25.8	

TABLE XII (B)

Number of Hanks of 20's count produced for Eight Hours Effective Working

Worker No.	Processes 1, 2 and 3 opening and cleaning to spinning			Processes 2 and 3 lap to spinning			Process 3, spinning on Ambar Charkha only		
	Mini- mum Hank	Maxi- mum Hank	Aver- age Hank	Mini- mum Hank	Maxi- mum Hank	Aver- age Hank	Mini- mum Hank	Maxi- mum Hank	Aver- age Hank
1	4.2	9.2	5.9	5.4	14.0	8.0	11.4	35.6	17.4
2	3.3	7.4	4.9	3.9	10.1	6.3	7.5	21.3	13.4
3	4.0	10.8	5.6	5.0	18.0	7.5	13.6	43.2	20.5
4	4.0	8.7	5.4	5.1	12.8	7.1	14.0	38.1	18.8
5	4.7	8.3	6.2	6.1	11.9	8.6	15.4	36.4	24.2

TABLE XII (C)

Individual and Average Daily Charkha Production (effective Hours/lb. and Hanks/8 effective hours on Charkha only) of 20's yarn for 12 days.

Worker	W1	W2	W3	W4	W5	Total	Hrs/	Hanks per 8 hours				
							b.X1/5 (Avg.)	Min.	Max.	Avg.		
Jan. 30	.	.	5.3	9.5	10.5	10.0	10.4	45.7	9.1	15.2	30.2	17.6
31	.	.	14.0	13.7	7.2	7.7	6.9	49.5	9.9	11.4	23.2	16.2
Feb. 1	.	.	12.0	8.7	9.3	11.4	7.0	48.4	9.7	13.3	22.8	16.5
2	.	.	12.2	7.5	11.8	10.7	6.5	48.7	9.7	13.1	24.6	16.5
3	.	.	6.6	8.3	7.8	7.0	6.2	35.9	7.2	19.3	25.8	22.2
4	.	.	10.3	20.6	11.0	9.8	6.7	58.4	11.7	7.8	23.9	13.7
5	21.3	3.7	6.7	6.0	37.7	9.4*	7.5	43.2	17.0
7	.	.	4.5	10.2	4.6	10.3	5.0	34.6	6.9	15.4	35.6	23.2
8	.	.	12.2	10.7	7.8	10.0	6.9	47.6	9.5	13.1	23.2	16.8
9	.	.	9.9	9.6	8.1	8.0	6.0	41.6	8.3	16.2	26.7	19.3
10	.	.	8.4	10.6	3.9	6.8	7.6	37.3	7.5	15.1	41.0	21.3
11	.	.	6.5	12.0	..	4.2	4.4	27.1	6.8*	13.3	38.1	23.5

* Xi/4

Reference Fig. I

TABLE XII (D)

Individual and Average daily Belani and Charikha Production (Effective Hours/lb. and Hanks/8 Effective Hours) of 20's yarn for 12 days.

Workers		W 1	W 2	W 3	W 4	W 5	Total	Aver age Hrs./ lb.	Hanks per 8 hrs.				
									Min.	Max.	Avg.		
Jan.	30	.	.	16.0	23.7	..	30.4	23.7	93.8	23.4	5.3	10.0	6.8
	31	.	.	30.0	27.9	12.4	22.8	21.6	114.7	22.9	5.3	13.0	7.0
Feb.	1	.	.	25.0	19.1	29.8	25.5	18.9	118.3	23.7	5.4	8.5	6.8
	2	.	.	25.9	20.4	26.0	24.4	16.4	113.1	22.6	6.2	9.8	7.1
	3	.	.	19.0	28.3	21.0	19.3	15.6	103.2	20.6	5.6	10.2	7.8
	4	.	.	17.8	30.7	27.9	18.1	15.9	110.4	22.1	5.6	10.1	7.2
	6	.	.	..	33.3	17.3	18.9	15.0	84.5	21.1	4.8	10.7	7.6
	7	.	.	..	23.5	16.1	..	18.7	58.3	19.4	7.8	9.9	8.2
	8	.	.	..	22.9	18.6	25.1	17.9	84.5	21.1	7.4	8.9	7.6
	9	.	.	18.0	25.3	21.8	22.2	18.6	105.9	21.2	6.3	8.9	7.5
	10	.	.	15.3	18.9	15.9	21.3	21.1	92.5	18.5	8.5	10.4	8.6
	11	.	.	15.4	15.8	16.1	47.3	15.7	9.9	10.4	10.2

Reference Fig. 2.

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TABLE XII (E)

The daily Dhunai Modhia Production in Effective hours/lb. and Individual and Average Daily Total Production (Processes 1 2 3 effective hours/lb and Hanks/8 effective hours) of 20's yarn for 12 days.

Worker	(1) Dhunai Modhia			(2) Ambar Belani			(3) Ambar Charkha-Hours/lb.			Hanks per 8 hours		
	Dhunai Modhia			W 3 W 4 W 5			Total			Hours/lb		
	W 1	W 2	W 3	W 4	W 5	Total	Min.	Average	Max.	Min.	Average	Max.
Jan. 30	7.6	23.6	31.3	38.0	31.3	124.2	23.6	38	31.0	4.2	6.8	5.2
31	7.3	37.3	35.2	30.1	28.9	151.2	19.7	37.3	30.2	4.3	8.1	5.3
Feb. 1	7.5	32.5	26.6	37.3	26.4	155.8	26.4	37.3	31.2	4.3	6.1	5.1
2	7.8	33.7	28.2	33.8	24.2	152.1	24.2	33.8	30.4	4.7	7.6	5.3
3	6.7	27.7	35.0	26.0	22.3	136.7	22.3	35.0	27.3	4.6	7.2	5.9
4	8.2	26.0	38.9	26.3	24.1	151.4	24.1	38.9	30.3	4.1	7.6	5.3
5	6.8	..	40.1	24.1	21.8	111.7	21.8	40.1	27.9	4.0	7.3	5.7
6	5.9	..	29.4	22.0	24.6	76.0	22.0	29.4	25.3	5.4	7.2	6.3
7	6.8	..	29.7	25.4	24.7	111.7	24.7	31.9	27.9	5.0	6.5	5.7
8	..	..	..	..	..	..	..	..	..	..	..	..
9	7.2	22.5	23.1	28.5	28.3	128.5	22.5	28.5	25.7	5.6	7.1	6.2
10	..	..	..	..	..	..	..	..	..	..	..	..
11	..	..	..	..	..	..	..	..	..	..	..	..
12	..	..	..	..	..	..	..	..	..	..	..	..

Reference Fig. 3

DAILY PRODUCTION RECORD FORMS FOR THE AMBAR CHARHIA WORKERS

Material particulars and production, time records for opening, carding, drawing, spinning and reeling.

FORM 'A' OPENING AND CARDING

(a) Hand Ginning, Hand opening and Bow Carding for the Seed Cotton (32's)

Date	Cotton	Weight in Tolas & Annas				Time in hours and minutes						No. of laps made	Remarks
		Kapas	Seed	Lint	Waste percent	Weighting	Cleaning	Ginning	Bow Carding	Lap making	Total production time		
		T.A.	T.A.	T.A.	T.A.	Hr. Min.	Hr. Min.	Hr. Min.	Hr. Min.	Hr. Min.	Hr. Min.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14

(b) Dhurui modhia opening and carding for the Baled Cotton (12's and 20's)

Date	Cotton	Weight in Tolas and Annas						Time in Hours and Minutes								Remarks
		Wt. of Cotton	Cleaning and predrawing waste	Lap fed	Carding		Per cent waste	Hand beating preparation	Predrawing		Carding	Repairs	Total time			
					Cotton delivered	Waste percent			No.	Time						
		T.A.	T.A.	T.A.	T.A.	T.A.	T.A.									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	

Date	No. of laps.	Weight in Tolas & Annas			Per cent Waste	Time in Hours and Minutes					Total time	Roving hank and	Belani draft	Process sequence and Remarks	
		Laps	Rovings	10 Yds. Roving		Waste	Lapping Drawing	Roving	Rest	Repairs					Misc. time
		T. A.	T. A.	T. A.	T. A.	Hr. Min.	Hr. Min.	Hr. Min.	Hr. Min.	Hr. Min.					
I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

FORM 'C' SPINNING ON CHARKHA

Date	Time in Hours and Minutes							No. of doffs	No. of bobbins	Spindle				Breaks
	Roving Weight	Roving dividing weighing	Spinning	Repairs	Rest	Misc.	Total time			Spindle 1	Spindle 2	Spindle 3	Spindle 4	
I	2	3	4	5	6	7	8	9	10	11	12	13	14	15

FORM 'D' REELING

Date	No. of bobbins reeling	Total No. of hanks made	Weight of hanks	Weight of waste	Percent of waste	Hanks for testing Hanks weaving	No. of breaks	No. of knots	Misc. time	Time for reeling	Total time	Remarks	
1	2	3	4	5	6	7	8	9	10	11	12	13	14

V

REPORT ON THE EXPERIMENTS CARRIED OUT ON "AMBAR CHARKHA" AT THE TECHNOLOGICAL LABORATORY, MATUNGA, BOMBAY 19.

INTRODUCTION

In order to ascertain the spinning performance of the "Ambar Charkha" with different types of cottons, experiments were undertaken at the Technological Laboratory, at the request of the Textile Commissioner, Ministry of Commerce and Industry, Government of India.

The All India Khadi and Village Industries Board delivered a complete set of Ambar Charkha by about the first week of August, 1955. The details of the processing and the nature of performance tests that had to be undertaken were not, however, available till the middle of August, 1955. After discussion with a representative of the Textile Commissioner, Bombay, a comprehensive scheme was drawn up, as incorporated in his letter No. P. & F/UNEC/15/892, dated the 22nd/23rd August, 1955, which is given in Annexure I. This covered only the brief outlines of the experiments, but the details of processing and the procedure to be adopted for the various tests had to be decided upon. For this purpose, a discussion was held at the Technological Laboratory, during the first week of October, 1955, when representatives of the All India Khadi Board and the Textile Commissioner were present, and details of the processes for testing the performance of the Ambar Charkha were settled. (Pl. see Annexure II). Till the details of processing and the cottons to be tested were decided after the receipt of the Ambar Charkha Unit at the Laboratory, preliminary trials were carried out on eight cottons. Regular experiments were, however, commenced by about the first week of October and carried on till about the 17th January, 1956; these have since been discontinued as the representative of the Khadi Board, who was operating the unit, absented himself and no substitute has been sent by the Khadi Board till now. Consequently, further work, viz., (i) production of sufficient quantity of yarn for weaving, (ii) study of the weavability of the yarns by preparing a fabric in a hand-loom, and (iii) the determination of the fabric quality, could not be undertaken. The present report therefore, covers the work done so far.

MATERIALS AND METHODS

(a) Material:

Practically all the important varieties of cotton grown in the various States in the Indian Union were selected for tests. Samples were taken from the stock which was available at the Laboratory and on which spinning and other tests had been

conducted earlier. A list of these cottons together with their chief fibre properties are given below:—

List of cottons tested

Laboratory Sample No.	Name of cotton	Place of growth	Mean fibre-length (inch)	Mean fibre- weight per inch (10-6 oz.)
14890	Matheo	Saurashtra	0.72	0.212
14771	35/1	Uttar Pradesh	0.77	0.224
14880	Vijay	Middle Gujrat	0.92	0.175
14786	Gaorani 6	Hyderabad	0.81	0.175
14975	H. 420	Madhya Pradesh	0.87	0.179
14500	Jarilla	Khandesh	0.84	0.155
14835	Laxmi	Karnatak	0.89	0.115
14991	Co. 2	Coimbatore	0.87	0.136
15012	K. K. 2	Koipattia	0.86	0.176
14976	Buri 0394	Madhya Pradesh	0.93	0.146
14836	M.A. 5	Mysore State	0.96	0.131
15011	M.C.U. 1	Srivilliputhur	0.94	0.134

(b) *Methods:*

The counts to which each cotton was spun is given below:—

Cotton	Counts of yarn spun
Matheo	10s and 14s
35/1	Do.
Vijay	20s and 30s
Gaorani 6	Do.
H. 420	Do.
Jarilla	Do.
Laxmi	Do.
Co. 2	Do.
K. 2	Do.
Buri 0394	30s
M. A. 5	Do.
Madras Cambodia Uganda 1	Do.

As regard the treatment for spinning 10s to 30s counts the following processes were employed:—

- (1) Beating on a jally (Gauze)
- (2) Bowing (Madhyam Pinjan)
- (3) Carding (Dhunai Modhia)
- (4) Ambar Belni (Sliver Preparer)
- (5) Ambar Charkha (Ring Frame).

The first two processes were left to the discretion of the worker concerned, but the next three were adopted for all the cottons for spinning the counts ranging from 10s to 30s from the machine-ginned lint available at the Laboratory. Further, the number of passages of the lap through the Ambar Belni was kept within the range of 4 to 8 and that for the preparation of the roving between 3 to 5 passages.

Further, the following cottons were spun to 40s and 50s counts, as noted against each, but the starting material was seed-cotton (kapas): —

Cotton	Counts spun
Vijay	40s
Laxmi	40s
Buri 0394	40s and 50s
M.A. 5	40s and 50s
Madras Cambodia Uganda I	40s and 50s

For these cottons, the following processes were employed:—

Ginning seed-cotton by “Salia Patri” and the lint obtained was subjected to: —

- (1) Bowing (Madhyam Pinjan)
- (2) Ambar Belni, and
- (3) Ambar Charkha (Ring Frame).

Atmospheric conditions prevailing during the experiments.—

All the experiments were conducted in a room where there was no control of relative-humidity and temperature.

The yarns spun were wet-reeled and allowed to dry in the room. Before the yarn tests were conducted, the yarns were conditioned for over a day at standard conditions of relative-humidity (65 per cent.) and temperature (82°F.).

Items recorded:

Complete details of the time taken for each process, speeds, and settings employed in each machine, and waste at every stages were recorded by an observer.

Details of fibre and yarn tests.—

(a) *Fibre tests.*—The mean fibre-length of samples before and after carding (Dhunai Modhia) were determined on Balls Sorter.

(b) *Yarn tests.*—The following yarn tests were made:—

- (1) Lea strength;
- (2) Single-thread strength and extension;
- (3) Twist; and
- (4) Evenness and neppiness of yarn.

Lea tests.—20 to 25 leas were tested for each count.

Single-thread strength and turns per inch.—200 single-thread tests and 200 twist tests were done for each yarn; the former on Goodbrand tester on 12" lengths and the latter on "Rockbank" tester on 1/3" lengths.

Yarn evenness and neppiness.—These were examined by the usual visual methods on black board.

RESULTS AND DISCUSSION OF RESULTS

(a) *Spinning Processes:*

The results obtained from the tests carried out on the lines indicated above are given in Table I and these are self-explanatory. Nevertheless, a few salient points will be given here:

Production of Yarn.—It will be seen from column 15 of Table IA that the production per spindle per day of 8 hours on the Ambar Charkha is, on an average, 4.1 hanks (3.3 ozs.) and 3 hanks (1.61 ozs.) for 20s and 30s counts respectively. If, however, the production is reckoned on the total actual working hours upto the spindle point, based on figures entered in column 7, the production per spindle per 8 hours upto spindle point is reduced to 1.3 hanks (1.05 ozs.) and 1.1 hanks (0.61 ozs.) for 20s and 30s respectively. Furthermore, if the reeling time is also included, i.e., if the actual working period taken for converting the lint into yarn including the time required for reeling is taken, there is a further reduction in the production figures, which now work out to be 1.1 hanks (0.92 ozs.) and 1 hank (0.53 ozs.) for 20s and 30s respectively.

Waste.—It is, however, to be noted that the lint, taken as the starting material, was that which was opened by beating on the jally, during which operation some of the dirt and trash was removed. The weight of lint taken for each sample is given in column 8 of Table IA. Basing the percentage on this figure, the wastage during the entire processing is given in column 12, from which it will be seen that this figure varied from 6.2 per cent. to 26.6 per cent. depending upon the cotton and the treatment.

Yarn breakages during spinning.—As could be expected, breakages during the spinning on the Ambar Charkha were more for the higher counts than for the lower, when spun from the same cotton. In certain cottons, as for example, H. 420, *Jarila*, *Buri* 0394 and *Matheo*, the end breakages were rather numerous.

Reeling breakages.—Though the yarns were wet-reeled, the reeling breakages, which were recorded for a few cottons, were fairly high for M.C.U.1, M.A.5, *Buri* 0394, *Jarila* and *Matheo*. This, of course, would result in knots at frequent intervals.

It will be seen from the record note of the discussion (*Annexure II*) that for spinning higher counts from the same cotton, the Khadi Board representative desired to use seed-cotton (*kapas*). The results obtained for those cottons for which the starting material was *kapas* are given in Table 1B.

One important point worthy of note in this connection is that the worker rejected a good amount of kapas which were undeveloped (immature) or stained and/or damaged otherwise. This amounts to the selection of good fibres for spinning higher counts.

The production per spindle per day of 8 hours is, on an average, 4.3 hanks (1.72 ozs.) for 40s counts. As will be seen from the last column of Table 1B, the production per man-hour including the time taken for reeling is, on an average, one hank (0.40 ozs.) for 40s and 0.9 hanks (0.29 ozs.) for 50s. It may, however, be remarked that the number of tests for 50s counts is too few and has, therefore, not been taken into account.

(b) *Yarn Test Results.*—

The yarn test results are given in Table II. It will be seen from the values given in this table that as many as 29 counts ranging from 10s to 50s for 12 varieties of cottons were tested for yarn-properties.

Lea Tests.—The actual counts obtained, lea strength and count-strength product are given in columns 5, 7 and 10 of Table II.

(a) *Counts.*—The difference between the actual count obtained and the nominal count is given in column 6 of Table II. It may be noticed that the variation ranged from 0 to 10 per cent. except in 3 cases; it was less than 5 per cent. in 15 cases. It may, therefore, be observed that the average variation was well within the limits of tolerance in at least half the number of samples tested.

(b) *Lea strength.*—The highest and the lowest values of lea strength obtained for each yarn are given in columns 8 and 9. It will be observed from these values that for a few cottons, viz., K. 2-20s, 35/1-14s, and Vijay-20s, the range of variation is fairly wide.

For comparative purposes, the following two tables have been constructed, using the values given in Table II. Table III contains the lea strength values corrected to nominal counts for the coarse counts 10s and 14s and Table IV for counts 20s, 30s, 40s and 50s. The standards of lea strengths laid down by the Textile Commissioner for reeling yarns are also given in these tables:—

Table III.—*Lea Strength (lbs.) for 10s and 14s.*

Cotton	Lea strength (lbs.) for	
	10s	14s
Mathew Local	68.9	34.9
35/1	97.1	57.0

N.B.—Hand-loom standards :
(laid down by Textile Commissioner)

	80 lbs.	78.6 lbs.
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Table IV.—*Lea Strength (lbs.) for 20s, 30s, 40s and 50s, counts.*

Cotton	Lea-strength (lbs.) for			
	20s	30s	40s*	50s*
Gaorani 6	75.2	35.7	..	..
Vijay	79.1	43.4	34.4	..
H 20	41.4	30.1	..	..
Jarila	60.2	39.1	..	..
Laxmi	76.0	42.1	40.8	..
Co. 2	53.7	32.0	..	..
K. 2	63.4	35.6	..	..
Buri 0394 . . . . .	..	28.5	31.5	27.3
M. A. 5 . . . . .	..	19.1	31.1	22.4
M. C. U. 1 . . . . .	..	37.6	34.8	29.3
N.B. (1) Hand-loom Standards				
	60 lbs for 20s	40 lbs. for 30s	32.5 lbs. for 40s	

(2) *Starting material was kapas in these cases.

It will be seen from the values given in Table III above that the 14s yarns did not come upto the strength standard. In the 20s, yarns, the strength obtained is below the standard in only one case. Out of the 10 samples spun into 30s, only 2 had lea-strengths slightly greater than the standard strength. As stated above, 40s, and 50s yarns were prepared from lint obtained from hand-ginning the selected kapas. It is noteworthy that all the 5 samples that were spun into 40s gave the requisite strength. The standard for 50s reeled yarn is not available. It should, however, be noted that Buri 0394 and M.A. 5 which failed to come up to the requisite standard of lea strength in the 30s counts, yielded stronger yarns in 40s counts, which are more or less equal to the standard. This is probably due to the fact that the latter counts were spun from good quality lint ginned by hand from selected kapas. Generally speaking, the results show that the requisite lea strength is realised in 20s and 40s yarns in the present experiments.

Comparison between yarn spun on the Ambar Charkha and that spun on mill machinery at the Laboratory.—The comparative values of lea strength are given in the following table:—

TABLE V.—Comparative values of lea strength (lbs.) for Ambar Charka spun and Laboratory spun yarns

Cottons	108		145		208		308		408		508	
	Charkha yarn	Labora-tory spun yarn	Charkha yarn	Lab. spun yarn	Charkha yarn	Lab. spun yarn	Charkha yarn	Lab. spun yarn	Charkha yarn	Lab. spun yarn	Charkha yarn	Lab. spun yarn
Matheo Local	68.9	100.4	34.0	55.1	..	..	..	..	..	..	..	..
35/1	97.1	..	57.0	87.2	..	..	..	..	..	..	..	..
Gaorani 6	..	..	..	..	75.2	99.6	..	..	..	..	..	..
Vijay	..	..	..	..	79.1	114.0	35.7	..	..	..	..	..
H. 420	..	..	..	..	41.4	82.1	43.4	66.4	34.4	41.8	..	..
Jarila	..	..	..	..	60.2	98.6	30.1	43.3	..	..	..	..
Laxmi	..	..	..	..	76.0	111.4	39.1	54.2	..	..	..	..
Co. 2	..	..	..	..	58.7	99.5	42.1	64.2	40.8	43.1	..	..
K. 2	..	..	..	..	63.4	85.2	32.0	55.9	..	..	..	..
Buri 394	..	..	..	..	..	..	35.6	45.9	..	..	..	..
M. A. 5	..	..	..	..	..	..	28.5	58.6	31.5	39.0	27.3	..
M. C. U. 1	..	..	..	..	..	..	19.1	49.5	31.1	32.4	22.4	..
Mean twist factor	4.9	4.0	5.0	4.0	4.86	4.0	4.80	4.0	3.90	4.0	3.75	4.0

In this connection, two points are to be noted: (i) the Charkha yarns were wet-reeled and allowed to dry and then tested, while the ring-spun yarns (Laboratory) were tested, as usual, without wetting and (ii) The average twist-factor was 4·8 for 20s and 30s for charkha-spun yarns while it was 4 for the other. If the Laboratory-spun yarns had been wet-reeled and tested with a higher twist factor, as for the Charkha yarns, the lea strengths would perhaps have been still higher. Taking the present values, however, it will be observed that the Charkha yarn is, on an average, 65·4, 61·4 and 85·5 per cent. of the Laboratory value for 20s, 30s and 40s respectively.

Single-thread Tests.—The counts obtained from single-thread tests closely follow those obtained for lea tests. The values of single-thread strength and extension are summarised in the following table VI.



TABLE VI.—Single thread strength (ozs.) and Extension (%) of yarns spun on Ambar Charika

Cotton	10s		14s		20s		30s		40s*		50s*	
	Strength (ozs.)	Extension (%)	Strength (ozs.)	Extension (%)	Strength (ozs.)	Extension (%)	Strength (ozs.)	Extension (%)	Strength (ozs.)	Extension (%)	Strength (ozs.)	Extension (%)
Matheo Local	15.7	10.0	8.2	7.5	..	..	..	..	..	..	..	..
35/1	15.2	8.8	11.5	7.4	..	..	..	..	..	..	..	..
Georani 6.	12.9	7.2	6.9	4.7	..	..	..	..
Vijay	14.2	5.9	6.1	4.1	5.8	4.1	..	..
H. 420	8.8	5.9	4.7	4.7	..	..	..	..
Iarila	11.8	5.8	3.8	4.7	..	..	..	..
Laxmi	10.3	6.7	7.3	5.0	6.7	4.7	..	..
Co. 2	9.4	6.9	5.8	4.6	..	..	..	..
K. 2	10.7	6.4	6.0	4.3	..	..	..	..
Buri 0394.	5.5	7.0	6.2	5.2	4.3	4.6
M. A. 5	7.0	7.8	6.7	5.4	4.2	6.2
M. C. U. I	6.4	5.2	6.0	4.8	4.8	4.1

* Starting material was kapas in these cases.

Table VII gives the comparative figures for percentage extension of single-thread for yarns spun on the Ambar Charkha and the ring-spun yarns Laboratory:—

TABLE VII.—Percentage extension of yarns

Cotton	20s		30s		40s*		50s*	
	Charkha-spun	Lab-spun	Charkha-spun	Lab-spun	Charkha-spun	Lab-spun	Charkha-spun	Lab-spun
Gaorani 6	7.2	6.6	4.7	5.8	..	..	..	..
Vijay	5.9	5.9	4.1	5.4	4.1	4.8	..	..
H. 420	5.9	6.5	4.7	5.8	..	..	..	..
Jarila	5.8	6.5	4.7	5.6	..	..	..	..
Laxmi	6.7	8.2	5.0	7.2	4.7	6.6	..	..
Co. 2	6.9	6.7	4.6	5.8	..	..	..	..
K. 2	6.4	5.4	4.3	5.0	..	..	..	..
Buri 0394	..	..	7.0	6.4	5.2	5.4	4.6	..
M. A. 5	..	..	7.8	..	5.4	..	6.2	..
M. C. U. 1	..	..	5.2	6.0	4.8	5.7	4.1	4.8
Mean	6.4	6.5	5.2	5.9	4.8	5.6	..	..

* Starting material was kapas in these cases.

The above results show that generally the yarns spun with the Ambar Charkha gave a somewhat lower extension than those spun on the Laboratory ring frame in the case of 30s and 40s counts.

The strength-irregularity percentages are compared with those of Laboratory-spun yarns in Table VIII.

TABLE VIII.—Strength-Irregularity percentages of Ambar Charkha-spun and Laboratory-spun yarns

Cotton	20s		30s		40s*		50s*	
	Charkha-spun	Lab-spun	Charkha-spun	Lab-spun	Charkha-spun	Lab-spun	Charkha-spun	Lab-spun
Gaorani 6	13.9	11.8	19.3	13.1	..	..	..	..
Vijay	17.8	9.6	17.3	10.6	15.9	12.0	..	..
H. 420	20.6	11.4	19.4	13.6	..	..	..	..
Jarila	10.4	10.6	23.9	11.7	..	..	..	..
Laxmi	12.2	8.9	16.4	11.1	10.2	13.4	..	..
Co. 2	14.9	9.8	18.9	13.3	..	..	..	..
K. 2	14.7	11.5	20.5	13.6	..	..	..	..
Buri 0394	..	..	16.8	11.4	17.1	12.8	15.0	..
M. A. 5	..	..	17.3	..	11.8	..	21.9	..
M.C.U. 1	..	..	18.6	11.0	15.2	13.4	16.0	14.5
Mean	14.9	10.5	18.8	12.2	14.0	12.9	..	..

* Starting material was kapas in these cases.

It will be seen from the above values that in almost all cases the charkha-spun yarn gave, as may be expected, a higher strength-irregularity percentage than those spun on the Laboratory frame. But the difference is small in 40s and 50s spun from lint obtained from selected kapas.

Twist Tests.—The twist factor or twist multiplier, which is obtained by dividing the number of turns per inch by the root-count of yarn, is given in column 17 of Table II.

It will be seen that the twist factor has varied from 3.2 to 5.6, the average twist factor being about 5 for 10s-14s counts, 4.8 for 20s-30s, and 3.90 for 40s. It should, however, be noted that these twist factors are likely to give the optimum strength for the counts of yarns spun on the Ambar Charkha, whereas all the yarns spun on the ring frame (Laboratory) were spun with a twist factor of 4. It may be remarked that if the twist factors employed in charkha spinning are used for spinning in the ring frame (Laboratory) the values of lea strength and single-thread strengths would be higher still.

Yarn Evenness and Neppiness.—The evenness class and the neps per yard of the yarns spun on the Ambar Charkha and those of the Laboratory-spun yarns are given in Table IX. Yarns wound on black boards are also sent along with this report.

A comparison of the evenness of the two yarns shows that the charkha yarn is fairly uneven to uneven in 10s and 14s, fairly even to uneven in 20s and 30s and even to fairly even in 40s and 50s, while the Laboratory-spun yarn is either even or even to fairly even in all counts. Here again, the charkha yarn is more even in finer counts than in the coarser ones.

As regards neppiness, all the yarns spun on the charkha are neppy while the Laboratory yarns are slightly neppy, except those spun from Laxmi, M.C.U. 1 cottons.

In conclusion, it may be remarked that the chief drawbacks of the charkha yarn appear to be the unevenness and neppiness. Generally speaking, this might be mostly attributed *inter alia* to various factors, such as (a) the uneven lap, the manner of handling the *pattas* and the defective weighting of the rollers by springs and strings in the Ambar *Belani*, and (b) the jerky movements of the various parts of the Ambar Charkha, slippage of the strings used to drive the various pulleys, defective spring weighting of the rollers and the unsteady spindle itself.

Fibre Properties: It was suspected that the *Dhunai Modhia* might break the fibres in the carding-process. The mean fibre-length of these cottons was, therefore, determined for samples obtained before and after carding, and the results are given in Table X.

TABLE X.—Mean fibre-length (inch) of samples before and after carding

Laboratory Sample No.	Cotton	Mean fibre-length (inch)	
		Before carding	After carding in Dhunai Modhia
14890	Mathew Local	0.72	0.67
14771	35/1	0.77	0.73
14786	Gaorani 6	0.81	0.82
14880	Vijay	0.92	0.90
14975	H. 420	0.87	0.80
14500	Jarila	0.84	0.79
14835	Laxmi	0.89	0.82
14991	Co. 2	0.87	0.74
15012	K. 2	0.86	0.79
14976	Buri 0394	0.93	0.81
14836	M.A. 5	0.96	0.89
15011	M.C.U. 1	0.94	0.81

It will be seen from the values given in the above table that there is considerable breakage of fibres in the carding process which is rather serious in the case of fine and long cottons, like M.C.U. 1, Buri 0394 and M.A. 5. It may, therefore, be remarked that this carding process should be avoided or the *Dhunai Modhia* suitably modified to minimise the damage to the fibres.

SUMMARY AND TENTATIVE CONCLUSIONS

The Ambar Charkha unit consists of (i) *Dhunai Modhia*, (ii) Ambar *Belani* (sliver preparer), and (iii) Ambar Charkha. The first two devices are meant to clean the cotton and prepare a suitable roving for feeding the Ambar Charkha. Although these have been devised to be as simple as possible, further improvements seem necessary. For example, *Dhunai Modhia* ruptures the fibres, as the present experiments have shown; it should, therefore, be modified or discarded. The Ambar *Belani* (sliver preparer) is a useful device, but it is here that the foundations for the irregularity or unevenness of yarn are laid. In the present processing, the lap is made by hand, the *pattas* are crimped, i.e., 128 yards are compressed in the palm of the left hand to a few inches, and then spread out again for doubling and further passages through the *Belani* the spring and string-weighting on the two pairs of rollers, which are likely either to produce slippage or stickiness of the sliver depending on the condition of the spring, etc.; the insertion of the roving twist appears to be somewhat irregular. Preparations of a fairly even roving is almost an art depending to some extent on the personal skill of the operator.

As regards the Ambar Charkha itself, it is a simplified ring frame with 4 spindles. The present model has no smooth movement of its parts; this has to be improved by re-designing the various parts and minimising friction, wherever possible. All sources which are likely to produce unevenness and neppiness in the yarn may have to be investigated.

It may be mentioned here that the economic aspect and the weaving performance of the yarn spun on this Charkha have not been examined in this investigation.

From the experimental results obtained on 12 varieties of Indian cottons, possessing a fairly wide range of fibre-properties, the following tentative conclusions may be drawn:—

(1) The production of yarn per spindle per day of 8 hours on the Ambar Charkha itself is, on an average, 3.5 hanks for 10s, 3.1 hanks for 14s, 4.1 hanks for 20s, 3 hanks for 30s, 4.3 hanks for 40s, and 3.1 hanks for 50s counts respectively, the corresponding production in ounces being 5.62, 3.58, 3.3, 1.61, 1.72 and 1.0 respectively. If, however, the total time for the conversion of lint to reeled yarn is considered, the production figures are nearly a fourth of the above figures. Further, it has to be reckoned here that an average village worker might not work with the same speed as that attained by Shri Gourhari Das. Consequently, the production figures are likely to be less than those given here.

(2) The range of variation of lea strength of a yarn spun on the Ambar Charkha lay within fairly wide limits. If the lea-strengths of the Charkha yarns are compared with the reeling standards of lea strength laid down by the Textile Commissioner for hand-looms, it will be observed that 20s and 40s yarns come up to the standards, while 30s yarns give lower values. The good performance of the Charkha in spinning 40s yarn might perhaps be attributed to the selection of better quality of lint obtained by hand-ginning the selected kapas.

(3) If, however, the charkha yarn is compared with that spun on mill machinery installed at the Laboratory, the former gives, on an average, 65.4, 61.4 and 85.5 per cent. of the latter for 20s, 30s, and 40s respectively.

(4) Single-thread strength and extension tests generally confirm the findings derived from the lea tests; except that the extension of charkha yarn is somewhat lower than that of the Laboratory yarn. Compared to the Laboratory yarn, the single-thread strength-irregularity of the Charkha yarn is high.

(5) It may be mentioned that the average twist factor inserted in the yarn varied from 3.2 to 5.6 for Charkha yarn, while it was 4 for Laboratory yarn. This means that the lea and single-thread strength values of the latter would be higher if the same twist factors as those found in the charkha-spun yarn are inserted.

(6) The chief drawbacks of the charkha yarn appear to be its unevenness and neppiness compared to the Laboratory yarn.

ACKNOWLEDGMENTS

Thanks are due to Shri V. V. Gupte, Spinning Master, for supervising these tests, to Shri M. G. Rege for recording the experimental observation, to Shri V. Venkataraman for compiling the data. Last but not the least, thanks are due to Shri Gourhari Das, who is an expert of the All India Khadi and Village Industries Board, and throughout worked with much zeal, for spinning the cottons mentioned in this report.

(Sd.) C. NAJUNDAYYA,
Director,
Technological Laboratory.

MATUNGA, BOMBAY;
Dated the 14th March, 1956.

ANNEXURE I

Government of India

Ministry of Commerce and Industry, Office of the Textile Commissioner, Wiltet Road, Ballard Estate, Bombay-1.

No. P & D/UNEC/15/892.

Dated the 22nd/23rd August, 1955.

The Director,
Technological Laboratory.
Matunga.

SUBJECT—*Experiments with Ambar Charkha.*

Dear Sir,

I am directed to furnish the following points which might be of use to you while deciding a comprehensive scheme for conducting experiments on Ambar Charkha:

- (1) mechanical condition, i.e., whether the Charkha is mechanically sound and can stand the strain of continuous operation;
- (2) whether the Charkha has suitable arrangements for processing cottons of different staple length and for varying the count, the draft, the twist, etc.;
- (3) the production per spindle for 8 hours for different counts and the efficiency obtainable when operated at a speed which can be maintained over a long period;
- (4) the range of count of yarn that can be spun from important varieties of cotton;
- (5) the evenness of the yarn spun, its cleanliness, neppiness, the regularity of flow of twist and the count per length product;

- (6) the percentage of waste produced for the different types of cotton;
- (7) the number of men required on the various processes and the production that is possible in poundage;
- (8) the statistical analysis of the data obtained and comparison of the same with data for mill yarn;
- (9) the quality of cloth woven on handloom out of yarn produced on Ambar Charkha and the difficulties, if any, experienced in weaving of this yarn;
- (10) comparison of cloth produced from yarn produced by Ambar Charkha with similar cloth produced on handloom from mill yarn.

We shall be thankful if you could enlighten us about the scheme when you are in a position to finalise it.

Yours faithfully,

(Sd.) A. C. CHAUDHURI,

Deputy Director (UNEC).

ANNEXURE II

Experiments on Ambar Charkha Unit

Discussions on the procedure to be adopted in testing the performance of this Charkha took place at the Technological Laboratory on the 5th October, 1955, between 11 A.M. and 2 P.M., when the following were present:—

Dr. C. Nanjundayya—Director, Technological Laboratory.

Shri A. C. Chaudhuri—Representative of the Textile Commissioner.

Shri V. V. Gupte—Spinning Master, Technological Laboratory.

Shri Gourhari Das—Representing the Khadi Board.

The following procedure was decided upon:—

For spinning 10s to 30s counts, the lint available at the Technological Laboratory should be used. The following processing should be employed:—

- (1) Beating on jally—gauze.
- (2) Bowing—*Madhyam Pinjan*.
- (3) Carding—*Dhunai Modhia*.
- (4) *Belani* (Sliver Preparer)—Ambar *Belani*.
- (5) Ring Frame (Ambar Charkha).

The first two operations should be left to be decided upon by the worker concerned for each cotton. The other three processes would be compulsory for all cottons for the range of counts 10s to 30s. As regards the *Belani*, it was decided that the passage of the "lap" should be within the range of 4 to 8 times and the preparation of the roving should be 3 to 5 passages through the *Belni*. It was

also decided that for the cottons, a list of which is given below, experiments upto 30s should be undertaken immediately:—

Laboratory Sample No.	Cotton	Counts
14890	Matheo	10s and 14s
14771	35/1	Do.
14880	Vijay	20s and 30s
14786	Gaorani 6	Do.
14975	H. 420	Do.
14500	Jarila	Do.
14835	Laxmi	Do.
14991	Co. 2	Do.
15012	K. 2	Do.
14976	Buri 0394	30s
14836	M. A. 5	Do.
15011	Madras Cambodia	Do.
	Uganda 1	

If it is intended to spin counts higher than 30s, it was agreed that seed-cotton should be used for the purpose and the following procedure should be adopted:—

- (1) Bowing.
- (2) Belni (Ambar Belni).
- (3) Ring Frame (Ambar Charkha).

It was agreed that experiments on counts higher than 30s should be undertaken after completing the tests on these cottons upto 30s counts. The cottons to be experimented upon and the counts to be spun are as follows:—

Cotton.	Counts.
Vijay	40s
Laxmi	40s
Buri 0394	40s and 50s
M. A. 5	40s and 50s
Madras Cambodia	
Uganda 1	40s and 50s

Shri Gourhari Das should train one of the experienced operatives to work this unit independently in the minimum possible time.

It was also decided that these experiments should be conducted in a room where there is no control of relative-humidity and temperature and the yarn spun from these cottons should be wet-reeled before it is tested under standard atmospheric conditions.

The demonstrator (Shri Gourhari Das) was expressly given to understand that he should get the complete details of processing, as regards speeds, settings, etc., recorded as accurately as possible.

As no definite programme of work has been given by the Khadi Board upto now, it was decided that both the processes and the cottons to be tested should have the prior approval of the Khadi Board and the Textile Commissioner before undertaking the proposed experiments. If the Khadi Board or the Textile Commissioner has any modification to suggest, it should be communicated immediately to avoid further delay in carrying out these experiments.

(Sd.) C. Nanjundayya.

(Sd.) A. C. Chaudhuri

(Sd.) V. V. Gupte.

(Sd.) G. H. Dass.

Technological Laboratory,

Mantunga,

Dated the 5th October, 1955.



TABLE IA
Table showing experimental Results obtained on Ambar Charkha
STARTING MATERIAL BEING LINT

Serial No.	Lab. Sample No.	Cotton	Commenc- ing date	1955	Finishing date	Total time taken	Actual working hours upto spindle point excluding time for repairs etc.	Wt. of lint (cleaned in jally)	Nomina. counts	Total yarn produced length
			1955	1955	hrs. min.	hrs. min.	Tolas ozs. as.			Hanks yd.
1	2	3	4	5	6	7	8	9	10	
1	14890	Mathio Local	8-11	16-11	19-50	12-00	24 9.6	108	5 100	5 200
			16-11	22-11	16-00	10-33	15 6.0	148	4 347	4 516
2	14771	35/1	23-11	26-11	16-00	11-2	20 8.0	108	4 600	5 13
			28-11	30-11	10-40	7-40	16 6.4	148	4 504	4 725
3	14880	Vijay	7-10	8-10	14-0	10-40	12 4.8	208	5 63	5 151
			10-10	11-10	17-30	9-50	8 3.2	308	5 453	5 671
4	14786	Gaorani 6	22-10	25-10	11-30	9-4	12 4.8	208	6 25	6 113
			22-10	25-10	10-55	7-53	8 3.2	308	5 20	5 93
5	14975	H. 420	13-10	14-10	9-40	7-10	12 4.8	208	5 40	5 120
			13-10	15-10	14-30	8-20	8 3.2	308	5 55	5 140
6	14500	Jarila	17-10	19-10	9-35	7-10	12 4.8	208	4 383	4 564
			17-10	19-10	17-45	12-10	8 3.2	308	5 610	6 40
7	14835	Laxmi	20-10	21-10	11-50	8-50	12 4.8	208	6 0	6 80
			20-10	22-10	13-00	9-31	8 3.2	308	4 560	4 800
8	14991	Co. 2	25-10	3-11	11-25	8-42	12 4.8	208	5 470	5 693
			25-10	28-10	12-25	8-40	8 3.2	308	5 260	5 413
9	15012	K. 2	3-11	4-11	11-00	7-56	12 4.8	208	5 320	5 493
			2-11	4-11	16-20	95-5	8 3.2	308	5 183	5 311
10	14976	Buri 0394	1-12	5-12	13-45	9-16	8 3.2	308	4 240	4 373
							* 2.7			
11	14835	M.A. 5	7-12	9-12	11-15	7-15	6-12*	308	4 130	4 227
							* 2.6			
12	14835	M.C.U. 1	9-12	15-12	8-5	6-30	6-8*	308	3 500	3 707

wt. of yarn produced	Waste %	Break- ages on chartha	Time for spinning on Chartha	Production of yarn per hr. on charka (4 spindles)	P. M. H. upto Spinning (4 spindles).	Reeling Breakages	Time for Reeling	Gandi	Hank	Oz.
Tolas as.	ozs.	12	13	14	15	Oz.	hr. min.	17	18	19
21-10	8.65	9.9	45	3-13	1.6	2.60	0.43	0.44	0.70	0.39
13-14	5.36	7.3	102	4-33	1.0	1.16	0.42	0.42	0.48	0.37
18-0	7.20	10.0	31	2-39	1.9	3.02	0.45	0.45	0.72	0.42
13-12	5.85	14.1	51	2-18	2.1	2.42	0.62	0.63	0.72	0.56
10-9	4.24	11.7	10	2-15	2.3	1.84	0.48	0.49	0.39	0.44
7-2	3.85	10.9	60	4-15	1.3	0.74	0.58	0.59	0.32	0.52
11-4	4.50	6.2	17	2-41	2.3	1.84	0.67	0.68	0.54	0.59
6-13	2.74	14.5	46	3-20	1.5	0.82	0.64	0.65	0.35	0.56
9-15	3.92	18.2	54	4-5	1.2	1.00	0.71	0.72	0.58	0.57
6-5	2.52	21.1	137	4-10	1.2	0.66	0.61	0.62	0.33	0.48
10-3	4.09	14.8	46	2-13	2.1	1.68	0.64	0.65	0.52	0.57
6-12	2.70	15.6	135	5-52	1.0	0.56	0.49	0.50	0.27	0.41
10-5	4.14	13.8	18	3-38	2.3	1.85	0.68	0.69	0.55	0.59
6-11	2.68	16.4	50	3-2	1.6	0.88	0.51	0.52	0.28	0.46
10-13	4.32	9.9	17	2-37	2.2	1.76	0.66	0.67	0.54	0.59
7-2	2.85	10.9	57	3-9	1.7	0.92	0.62	0.63	0.34	0.55
10-10	4.25	11.5	7	2-48	2.0	1.60	0.69	0.70	0.56	0.67
6-13	2.72	13.8	83	3-42	1.4	0.77	0.53	0.54	0.29	0.47
5-14	2.35	26.6	97	2-58	1.5	0.79	0.47	0.48	0.26	0.42
6-3	2.48	8.3	70	2-30	1.7	0.91	0.58	0.59	0.31	0.52
5-1	2.02	22.1	58	2-0	1.9	1.02	0.58	0.59	0.31	0.52

1 Tar = 4 ft.

640 Tars = 1 Gundi.

Wts. used for weighing the yarn are Bengal Wts.

One hank = 840 yds.

P.M.H. = Production per man-hour.

TABLE IB
Table showing experimental results obtained on Ambar Churkha.

STARTING MATERIAL BEING 'KAPAS'

I	2	3	4	5	6	7	8	9	10	11
Serial No.	Lab. Sample No.	Cotton	Commencing date	Finishing date	Time taken for ginning hrs. min.	Total time taken hrs. min.	Actual working hours upto spindle point including ginning but excluding time for repairs etc. hrs. min.	Wt. of lint from kapas Tolas as. ozs.	Nominal counts	Total yarn produced (length) Guindi tars Hanks yds.
1	14880	Vijay	15-12-55	19-12-55	1 0 11	45	7 1	5 0	2.0	40S 5 50 5 133
2	14835	Laxmi	26-12-55	28-12-55	3 35 11	35	8 42	5 0	2.0	40S 4 510 4 733
3	14976	Buri 03-94	19-12-55	22-12-55	2 56 14	15	8 50	5 0	2.1	40S 4 420 4 613
4	14836	M. A. 5	23-12-55	24-12-55	2 14 11	39	8 46	4 0	1.6	50S 4 480 4 693
5	15011	M.C.U. I	6-1-56	10-1-56	2 34 14	45	9 9	4 8	1.8	40S 4 25 4 87
			14-1-56	17-1-56	2 0 11	0	8 52	3 8	1.4	50S 4 0 4 53
			28-12-55	31-12-55	2 54 9	54	8 12	4 8	1.8	40S 4 140 4 240
			2-1-56	3-1-56	2 16 11	58	8 39	3 8	1.4	50S 4 320 4 480

(1) Waste percent is calculated on the lint and (2) Quite an amount of kapas was rejected during ginning

1 Tar =
640 Tars =

4 feet
1 Guindi

Wts. used for weighing the yarn are Bengal wts.
853 1/3 yds.
840 yds.
Production per man-hour.

1 Hank =
P.M.H. =

TABLE II
Yarn Test Results

1	2	3	4	5	6	7	8	9
LEA								
Serial No.	Sample No.	Cotton	Nominal counts	Actual counts	Variation of actual count from nominal (%)	Strength (lbs.)	Lea Strength (lbs.)	
							Highest value	Lowest value

STARTING MATERIAL—LINT

1	14880	Vijay	20s	18.9	-5.5	85.9	112.5	61.5
2	14880	Vijay	30s	32.6	+8.7	37.5	48.0	26.0
3	14975	H. 420	20s	21.1	+5.5	37.2	43.5	29.0
4	14975	H. 420	30s	32.9	+9.7	24.7	36.0	16.0
5	14500	Jarila Jalgaon	20s	18.9	-5.5	65.9	75.0	45.0
6	14500	"	30s	41.7	+39.0	19.5	23.5	15.0
7	14835	Laxmi Gadag	20s	23.4	+17.0	59.4	73.0	49.0
8	14835	"	30s	30.2	+0.7	41.6	53.0	30.0
9	14786	Gaorani 6	20s	21.4	+7.0	67.8	85.0	54.0
10	14786	" 6	30s	30.8	+2.7	34.0	41.0	28.0
11	14991	Co 2	20s	21.3	+6.5	52.8	64.0	38.0
12	14991	Co 2	30s	31.1	+3.7	29.8	33.0	27.0
13	15012	K. 2	20s	20.6	+3.0	60.4	77.0	28.0
14	15012	K. 2	30s	31.6	+5.3	32.2	46.0	22.0
15	14890	Mathio Local	10s	10.2	+2.0	66.7	78.0	52.0
16	14890	"	14s	14.9	+6.4	30.3	39.0	24.0
17	14811	35/1	10s	11.3	+13.0	80.8	92.0	70.0
18	14881	35/1	14s	14.2	+1.4	55.6	73.0	38.0
19	14976	Buri 0394	30s	30.3	+1.0	27.9	31.0	23.0
20	14836	M.A.V.	30s	27.3	-9.0	24.4	39.0	17.0
21	15011	M.C.U. 1	30s	30.0	0.0	37.6	51.0	27.0

STARTING MATERIAL—KAPAS

22	14880	Vijay	40s	41.6	+4.0	32.2	42.5	25.0
23	14976	Buri 0394	40s	40.2	+0.5	31.2	36.0	25.0
24	14976	"	50s	52.1	+4.2	25.5	34.5	18.8
25	14835	Laxmi Gadag	40s	41.7	+4.2	38.2	48.4	28.0
26	15011	M.C.U. 1	40s	41.1	+2.8	33.2	42.0	22.0
27	15011	"	50s	55.1	+10.2	25.0	30.5	16.0
28	14836	M.A.V.	40s	39.7	-0.8	31.5	39.5	22.5
29	14836	M.A.V.	50s	49.6	-0.8	22.7	28.5	18.8

*Irregularity percentage is calculated from the formula $\left(\frac{M-MI}{M} + 100 \right)$ where M is the mean and MI is the mean of those readings which are less than M.

**Please see bottom of Table IX for explanation of these figures.

TABLE II.—*contd.*
Yarn Test Results

10	11	12	13	14	15	16	17	18	19
SINGLE-THREAD						TWIST		Even- ness Class **	Neps per yard
Count- Stren- gth product	Actual counts	Strength (ozs.)	Count- stren- gth product	Stren- gth Irregu- larity (%)	Exten- sion (%)	Turns per inch	Twist multi- plier		
1624	17.2	14.2	244	17.8	5.9	20.5	4.6	4 1/2	3.5
1222	37.0	6.1	226	17.3	4.1	30.7	5.6	5	3.8
785	19.0	8.8	167	20.6	5.9	23.6	5.3	6	3.2
813	33.9	4.7	159	19.4	4.7	29.5	5.4	6 1/2	4.2
1246	18.9	11.8	223	10.4	5.8	19.7	4.4	5 1/2	4.2
813	40.4	3.8	154	23.9	4.7	29.2	5.3	6	3.8
1390	23.5	10.3	242	12.2	6.7	21.0	4.7	5 1/2	6.2
1256	31.0	7.3	226	16.4	5.0	25.4	4.6	5 1/2	4.2
1451	19.8	12.9	255	13.9	7.2	21.9	4.9	5 1/2	2.8
1047	31.5	6.9	217	19.3	4.7	24.6	4.5	5	2.2
1125	21.7	9.4	204	14.9	6.9	23.1	5.2	5 1/2	3.5
927	29.6	5.8	172	18.9	4.6	27.3	5.0	6	4.0
1244	20.8	10.7	223	14.7	6.4	22.0	4.9	5	2.2
1018	32.9	6.0	197	20.5	4.3	24.9	4.5	5 1/2	2.8
680	9.2	15.7	144	16.7	10.0	15.0	4.7	6	3.0
451	14.7	8.2	121	22.8	7.5	19.1	5.1	6 1/2	3.2
913	11.1	15.2	169	13.8	8.8	16.7	5.3	6 1/2	3.0
790	14.0	11.5	161	18.3	7.4	17.6	4.7	6 1/2	2.2
845	30.0	5.5	165	16.8	7.0	23.1	4.2	6	2.5
666	26.0	7.0	182	17.3	7.8	25.4	4.6	6	5.5
1128	32.5	6.4	208	18.06	5.2	23.5	4.3	6	4.8
1340	43.0	5.8	249	15.9	4.1	24.1	3.8	4 1/2	2.2
1254	40.4	6.2	250	17.1	5.2	25.4	4.0	4	2.0
1329	50.3	4.3	216	15.0	4.6	22.9	3.2	4 1/2	2.0
1593	42.3	6.7	283	10.2	4.7	23.1	3.7	4	2.0
1365	40.2	6.0	241	15.2	4.8	24.0	3.8	4 1/2	2.5
1378	58.6	4.8	281	16.0	4.1	27.7	3.9	5	2.5
1251	38.1	6.7	255	11.8	5.4	26.5	4.2	4	3.2
1126	47.2	4.2	198	21.9	6.2	29.0	4.1	..	..

TABLE IX
COMPARATIVE VALUES FOR CHARKHA SPUN AND LABORATORY SPUN YARNS FOR EVENNESS CLASS AND NEPS
PER YARD ARE GIVEN IN THE TWO TABLES BELOW

EVENNESS CLASS															
Cotton															
	10s	14s	20s	30s	40s	50s									
	Charokha	Labora- tory yarn	Charokha	Labora- tory yarn	Charokha	Labora- tory yarn	Charokha	Labora- tory yarn	Charokha	Labora- tory yarn	Charokha	Labora- tory yarn	Charokha	Labora- tory yarn	Charokha
	Labora- tory yarn	Charokha	Labora- tory yarn	Charokha	Labora- tory yarn	Charokha	Labora- tory yarn	Charokha	Labora- tory yarn	Charokha	Labora- tory yarn	Charokha	Labora- tory yarn	Charokha	Labora- tory yarn
Mathio Local	6	3	6½	4	..	..	..	..	..	..	..	..	..	..	..
35/1	6½	4	6½	3	..	..	..	..	..	..	..	..	..	..	..
Gaorani 6	5½	3	5	4	..	..	..	..	..	..	..
Vijay	4½	3	5	3½	4½	4	..	..	..	..	..
H. 420	6	3	6½	4	..	..	..	..	..	..	..
Jarila	3½	3	6	4	..	..	..	..	..	..	..
Laxmi	3½	3	5½	4	4	5	..	..	..	..	..
Co. 2	5½	3	6	4	..	..	..	..	..	..	..
K. 2	5	3	3½	4	..	..	..	..	..	..	..
Buri 0394	6	4	4	5	4½	..	..	..	..
M.A. 5	6	5	4	6	..	..	..	..	..
M.C.U. I	6	4	4½	5	5	..	..	..	5½

Classification: 3-Even 4-Even, to fairly even 5-fairly even, 6-fairly even to uneven, 7-uneven.

VI

REPORT OF THE PRINCIPAL, GOVERNMENT CENTRAL TEXTILE INSTITUTE,
KANPUR, REGARDING THE TEST ON AMBAR CHARKHA DESIGNED IN
ACCORDANCE WITH THE DIRECTIONS RECEIVED FROM THE MINISTRY OF
PRODUCTION.

The instructions required that the test should be conducted with the help of the spinners and the ambar charkha sets supplied by the All India Khadi and Village Industries Board and Ambar Charkha Samiti, Ahmedabad, whereas cotton and yarn were to be supplied by the Textile Commissioner, Bombay. Since only one spinner with one charkha had arrived from Wardha and action by Ambar Charkha Samiti, Ahmedabad and the Textile Commissioner was awaited, the tests could not be started till instructions were received verbally on the 11th of May at Delhi that the tests may be conducted with the help of the spinner who may have arrived and with such cotton as may be locally available.

The tests were conducted with the help of one spinner Shri D. P. Singh of Wardha who had been deputed by the All India Khadi and Village Industries Board. As Shri Singh was ill on the 17th of May, observations could be recorded only on four dates, i.e., 14th, 15th, 16th, and 18th. The observations recorded are:—

- | | |
|---|--------------------------|
| (1) Cotton used— | (i) Vijai of Ahmedabad. |
| | (ii) Vijai balcd. |
| | (iii) Jerilla-balcd. |
| (2) Percentage of carding waste | 2.3 to 3.125% |
| (3) No. of drawing operation | 1/4/4 |
| (4) No. of Roving operation | 1/3 |
| (5) Counts spun | 18 to 18.8 |
| (6) Lea strength of the yarn | 60 lbs. |
| (7) Percentage of waste from Belini to spinning | From 3 to 8.5% |
| (8) Production in hanks in 4 hours | 6.25 to 8.2 hanks. |
| (9) Carding done— | On <i>Dhunai Mudia</i> . |

Railway receipt of the parcel of cotton and yarn from the Textile Commissioner has been received and they would be available in a day or so. Comparative tests on reeled mill yarn will not be performed and communicated.

(Sd.) J. N. SINGH,
Principal, Govt. Central Textile Institute,
Kanpur.

May 19, 1956.

Tests report of the cloth made of Ambar yarn and mill yarn.

Sample made from	Ends per inch.	Picks per inch.	Counts of warp	Counts of weft	Breaking Strength	
					7" × 4" Warp	in Lbs. Weft
Mill yarn	56	57	40's	40's	54	68
Ambar yarn	57	59	40's	39's	70	89

N.B. 1. Ends and picks per inch values represent the mean of 25 readings.

2. The values of warp and weft counts represent the mean of 20 readings.

3. The values of breaking strength tests represent the mean of five readings.

(Sd.) J. N. SINGH,

Principal, Government Central Textile Institute,
Kanpur.

May 19, 1956.

COMMENTS ON OBSERVATIONS TAKEN FROM PERFORMANCES ON AMBAR
SET WITH 12S YARN FROM WAGAD COTTON SUPPLIED BY TEXTILE
COMMISSIONER.

1. The 12s yarn was spun from wagad cotton on improved charkha only as old charkha could not be run due to sickness of one of the spinners.

2. The Wagad cotton is inferior in quality as it contains vegetable impurities to marked extent together with cotton seeds which caused slightly higher percentage of waste in opening and carding except one day i.e., 1st June, 1956 on which the total waste from cotton to spinning is only 6.32%.

3. The Drawing and roving operations were increased and maximum time was taken in Belni operations because of the quality of cotton to be processed.

4. The Ambar Charkha was adjusted for spinning 12s. counts with drafting rollers of smaller diam. and twist adjusted by multi-grooved pulley and spindles.

From the chart it is clear that time taken up for Belni operations is always on the greater side than that of spinning for 12s count while for 32s it was almost equal in both operations.

From the chart of yarn tests, it has been found that though the turns per inch in Ambar yarn are slightly all over higher but the lea test is on a little lower side. The variations in turns per inch are also considerably less.

(Sd.) J. N. SINGH,

Principal, Government Central Textile Institute,
Kanpur.

Abstract of Processing on Ambar Charkha

Desired count 12s

Name	Date	Counts	Production in 8 hours (From cotton to spinning including reeling. Hanks.)	Total waste %	Remarks
Shri D. P. Singh	..	..	..	..	He did not carry out performance due to illness.
Shri B. R. Singh	1-6-56	11.5s	7.0	6.32%	
	2-6-56	12.75s	7.0	14.32%	
	3-6-56	12.2s	7.8	12.93%	

(Sd.) J. N. SINGH,

Principal,
Govt. Central Textile Institute, Kanpur.

YARN TESTS

Desired counts—12s from Waged cotton.

Date	Standard Chartka				Improved Chartka				Mill Reeled Yarn			
	Average Counts	Average Lea B S	Average T/I	Variation in T/I	Average Counts	Average Lea B S	Average T/I	Variation in T/I	Average Counts	Average Lea B S	Average T.I.	Variation in T/I.
1	2	3	4	5	6	7	8	9	10	11	12	13
30-5-56	13.2s	17.4	13.9	Min. 12.1 Max. 13.7	..	..	..	..	11.6s	51.2	15.1	Min. 14.6 Max. 15.7
31-5-56	10.9	21.4	14.9	Min. 14.8 Max. 15.0	13.88s	39.6	18.8	Min. 15.7 Max. 21.9	..	..	..	..
1-6-56	..	..	..	..	11.5s	45.8	18.3	Min. 17.0 Max. 19.7	..	..	..	..
2-6-56	..	..	..	..	12.75	45.8	18.5	Min. 16.8 Max. 20.2	..	..	..	..
3-6-56	..	..	..	..	12.2	50.0	18.0	Min. 17.9 Max. 18.1	..	..	..	..

(Sd.) J. N. SINGH,
Principal,
Government Central Textile
Institute,
Kanpur.

KANPUR
14-6-1956.

ABSTRACT OF PROCESSING ON AMBAR CHARKHA

Desired count 32s from Vijay Seed cotton

Name	Date	Counts	Production in 8 hours from cotton to spg. including Weaving	Total Waste %	Remarks
Sri B. R. Singh	25-5-56	32.0s	6-hanks	3.9	Improved Charkha.
	26-5-56	33.3s	7 1/2 hanks	7.1	
	28-5-56	33.3s	8 2/3 hanks	5.3	
Sri D. P. Singh	25-5-56	26.2s	6-hanks	..	Standard Charkha
	26-5-56	20.9s	4 1/2 hanks	..	
	28-5-56	27.0s	6-hanks	..	

Sd/- J. N. SINGH,
Principal,
Government Central Textile Institute,
Kanpur.

सत्यमेव जयते



सत्यमेव जयते

APPENDIX VII

Report of the All India Khadi and Village Industries Board on the field tests carried out on the Ambar Charkha under the "Ambar Charkha Pilot Project Scheme".





सत्यमेव जयते

APPENDIX VII

I

A BRIEF NOTE ON THE AMBAR CHARKHA PILOT PROJECT SCHEME

In addition to the laboratory tests which are being carried out on the Ambar Charkha, Government in November 1955, sanctioned a scheme known as the "Ambar Charkha Pilot Project Scheme" for carrying out field tests on the Ambar Charkha, with a view to assess its technical potentialities and to assess the degree of the acceptability by the handloom weavers of the yarn produced.

2. The scheme as sanctioned by Government, comprised the following:—

- (i) opening of 15 *vidyalayas*;
- (ii) opening of 100 *prishramalyas* (training-cum-production centres);
- (iii) opening of six functional offices—one each for co-ordination, manufacture of charkha sets, distribution of yarn, distribution of charkhas, training and inspection.

3. The scheme was estimated to cost Rs. 29,58,625 made up of Rs. 17,58,625 as grants and Rs. 12,00,000 as loans and was to be implemented through the agency of the Sarva Seva Sangh and other registered bodies.

II

REPORT ON THE AMBAR CHARKHA PILOT PROGRAMME

The Background

In pursuance of its undertaking to the Karve Committee to supply by April 1956, comprehensive and representative data on the potential productive capacity of the Ambar Charkha and the acceptability of the yarn turned out on it to the bulk of the handloom weavers, the All-India Khadi and Village Industries Board formulated in October 1955, a three-fold Pilot Programme. The Board's Ambar Charkha Pilot Programme envisaged: (i) the provision of an intensive six-weeks' training course to 400 selected instructors in 15 specially established *vidyalayas*; (ii) the establishment of 100 *Parishramalayas* all over the country to provide intensive training and practice for a minimum period of six weeks each, in the use of the Ambar Charkha and its accessories to new and old spinners and to verify whether, with that training and practice, an average spinner on the Ambar Charkha could produce 8 hanks of yarn from carding to spinning, or 16 hanks of yarn (only spinn-

ing) per day of 8 hours; and (iii) the distribution of Ambar yarn to handloom weavers to determine its acceptability to them. The report on the first two parts of the programme presented in the following pages is based on the report of the officer in charge of Ambar Charkha Training and the data collected during the fortnight March 28 and April 13, 1956 by the managers of the *Parishramalayas*. The data on the third part of the programme are being collected and report will shortly follow.

Training of Instructors

2. The training programme for instructors envisaged the establishment of 15 *vidyalayas* at selected centres and the provision of an intensive six-weeks' training course to 400 workers deputed by the institutions in each region of the country during the period November 15—December 31, 1955. The Amber Charkha Samiti of the Sarva Seva Sangh, which was in executive charge of the entire Pilot Programme, set up 14 *vidyalayas* and trained 354 workers during the period. The region-wise location of the *vidyalayas* and the number of instructors trained at each are set out in Table I. Except the *vidyalaya* at Rajkot, which was started on December 17, 1955, all the others were set up to schedule to provide the requisite training to the selected candidates.

TABLE I

Vidyalaya	Region	No. of instructors trained.
1. Madhubani	Bihar	40
2. Akbarpur	Uttar Pradesh	34
3. Nagina	Uttar Pradesh	30
4. Sabarmati	Gujarat	17
5. Rajkot	Saurashtra	20
6. Hubli	Karnatak	13
7. Wardha	Madhya Pradesh	29
8. Adampur-Doaba	Punjab	23
9. Shivdasapura	Rajasthan	20
10. Vccrapandi	Tamilnad	40
11. Avanghata	Bengal	14
12. Kujendri	Orissa	12
13. Ujjain	Madhya Bharat	22
14. Kakinada	Andhra	40
TOTAL		354

3. Of the 354 candidates trained at the *vidyalayas* the majority, it is reported, were old, experienced khadi workers deputed by established institutions. The *vidyalayas* at Akbarpur and Nagina had, however, wholly new workers. Details are, however, not available to classify all the candidates into new and old khadi workers.

4. Although the establishment of each *vidyalaya* presented several initial difficulties, such as inadequacy of space, non-availability of Charkha sets, implements, tools, spare parts and raw materials, the majority of the *vidyalayas* completed the prescribed training syllabus. Of the 47 days between November 15 and December 31, the syllabus prescribed a work period of 40 days or 320 hours of training, of which 40 hours were reserved for instruction in theory and 280 hours for actual work on the Ambar Charkha. Owing to the inadequacy of space in the *vidyalaya* at Nagina (U.P.), which was located in the urban sector, non-availability of skilled carpenters locally in Adampur-Doaba (Punjab), and—the absence of trained carpenters in Adamghata (Bengal), the instructors' course fell short of the required standards at these *vidyalayas*, as uniformity in the quality of the Charkha sets could not be ensured. In spite of it, the programme of training was implemented to schedule.

Parishramalayas

5. The main objective of the Ambar Charkha Pilot Programme was the verification of the claim that, given a minimum training and practice of six weeks each, an average spinner on the Ambar Charkha could produce 8 hanks of yarn from carding to spinning, or 16 hanks of yarn taking only spinning per day of 8 hours. Towards this end, the programme envisaged the establishment of 100 *Parishramalayas* all over the country for the collection of representative data on the performance of the spinners on the Ambar Charkha and its accessories. Each *Parishramalaya* was to be equipped with 60 Ambar Charkha sets and undertake training of 120 spinners. Thus, the programme sought to collect representative as well as comprehensive data on the average productive capacity of the spinner.

Establishment of Parishramalayas

6. As against its original programme to establish 100 *Parishramalayas* during the period November 1955—March 1956, the Ambar Charkha Samiti set up 121 *Parishramalayas*, of which 114 were main, and 7 subsidiary *Parishramalayas*. All the main and subsidiary *Parishramalayas* worked full-time with the exception of two, one at Pusa Road (Bihar) and another in Ahmedabad (Gujarat) each of which worked wholly part-time, 4 hours and 2 hours respectively. The region-wise distribution of the *Parishramalayas* and the number of spinners who worked in each of them during the last fortnight March 28th—April 13th, classified according to their sex are set out in Table 2.

TABLE 2
Distribution of Parishramalayas

Region	No. of Parishramalayas	Spinners*		Total
		Male	Female	
I	2	3	4	5
1. Bengal	4	107	51	158
2. Andhra	12	116	195	311
3. Karnatak	3	77	143	220
4. Maharashtra	4	114	34	148
5. Gujerat	7	123	188	311
6. Kerala	3	N.A.	N.A.	N.A.
7. Malabar	4	2	86	88
8. Tamilnad	12	134	222	356
9. Uttar Pradesh	18	470	49	519
10. Utkal	4	152	17	169
11. Punjab-PPPSU	5	..	225	225
12. Bihar	22	382	307	689
13. Madhya Pradesh	3	N.A.	N.A.	N.A.
14. Madhya Bharat	5	56	120	176
15. Rajasthan	5	116	68	184
16. Hyderabad	4	10	12	22
17. Saurashtra & Kutch	5	N.A.	N.A.	N.A.
18. Delhi	1	52	12	64
TOTAL	121	1,911	1,729	3,640

*Number of spinners shown here refer to those present during the last fortnight in the reporting parishramalayas.

Coverage of Parishramalayas

7. Of the 121 Parishramalayas set up during the period reports were received from 111 Parishramalayas. No reports were received from 3 Parishramalayas in Hyderabad, 3 Parishramalayas in Madhya Pradesh, 4 in Andhra and 4 in Bihar; 8 reports from Uttar Pradesh, 5 reports from Saurashtra, 1 each from Andhra, Utkal, Gujerat, Kerala and Malabar were rejected as they were incomplete; 2 reports from Punjab and 1 from Rajasthan were rejected because of incorrect reporting. Reports of 2 Parishramalayas in Kerala could not be taken for analysis as the training provided by them was less than the barest minimum. Thus, of the 121 Parishramalayas set up during the period, the report presented in the following pages covers only 84 Parishramalayas or about 70 per cent. of the total number set up. Region-wise analysis of the number and character of the reports is set out in Table 3.

TABLE 3

Analysis of Reports from Parishramalayas

Region	No. of Parishramalayas	No. that reported	No. of reports rejected/omitted	Cause	No. covered by the report
1	2	3	4	5	6
1. Bengal . . .	4	4	..	..	4
2. Andhra . . .	12	8	5	4 no reports 1 rejected for incorrect reporting.	7
3. Karnatak . . .	3	3	..	..	3
4. Maharashtra . . .	4	4	..	..	4
5. Gujerat . . .	7	7	1	incomplete.	6
6. Kerala . . .	3	1	3	1 incomplete 2 no reports	..
7. Malabar . . .	4	4	1	incomplete,	3
8. Tamilnad . . .	12	12	..	..	12
9. Uttar Pradesh . . .	18	18	8	incomplete,	10
10. Utkal . . .	4	4	1	incomplete	3
11. Punjab-PEPSU . . .	5	5	2	incorrect,	3
12. Bihar . . .	22	18	4	No report,	18
13. Madhya Bharat . . .	5	5	..	..	5
14. Madhya Pradesh . . .	3	Nil	3	No report,	Nil
15. Rajasthan . . .	5	5	1	incorrect,	4
16. Hyderabad . . .	4	1	3	No report,	1
17. Saurashtra-Kutch . . .	5	5	5	incomplete,	Nil
18. Delhi . . .	1	1	..	..	1
Total . . .	121	105	37		84

Classification of Spinners

8. The 121 *Parishramalayas* set up during the period admitted in all 4686 spinners, of whom only 3640 spinners were present during the last fortnight, the balance being absent due either to illness or to social obligations arising from the celebration of marriages or the advent of new year. Of the total number who worked during the last fortnight 1911 or about 52·5 per cent. were boys or men in the age group of 12—60, and 1729 or 47·5 per cent. were girls and women in the age group of 9—60. The ratio of men to women varied widely from region to region. Thus, while the majority of the spinners in *Parishramalayas* in Delhi, U.P., Utkal, Bengal, Maharashtra, Rajasthan and Madhya Bharat were men, those in the Punjab and Malabar were all women. The regional variation in the percentage distribution of spinners by sex is summed up in Table 4.

TABLE 4

*Percentage Distribution of Spinners by sex**

Region	Men	Women
1. Bengal	67.7	32.3
2. Andhra	37.3	62.7
3. Karnatak	35.0	65.0
4. Maharashtra	77.0	23.0
5. Gujerat	39.6	60.4
6. Malabar	2.3	97.7
7. Tamilnad	37.7	62.3
8. U.P.	90.6	9.4
9. Utkal	89.6	10.4
10. Punjab	Nil	100.0
11. Bihar	55.5	44.5
12. Madhya Bharat	31.9	68.1
13. Rajasthan	53.0	37.0
14. Hyderabad	45.4	54.6
15. Delhi	81.8	18.2
ALL-INDIA	52.5	47.5

*Based on the abstract of Statement I.

9. Of the total spinners admitted by the *Parishramalayas*, the number of old spinners (boys or men, girls or women, with experience of handspinning on any of the many models of the Traditional Charkha) was on the whole insignificant. All the women spinners in the 22 *Parishramalayas* in Bihar and all the spinners in one *Parishramalaya* in Madhya Bharat were, however old spinners, the numbers of old spinners in the other *Parishramalayas* being altogether negligible. In other words, about 90 per cent. of the spinners admitted by the *Parishramalayas* all over India were altogether new spinners.

10. The number of weavers, men and women, or individuals belonging to the weavers' class also was very small. Except 3 *Parishramalayas* in Andhra and 1 in Gujerat, most of the *Parishramalayas* had either no weaver at all or had only an insignificant number. Details of this classification were, however, not called for and the oral reports of the managers of the *Parishramalayas* confirm that the number of weavers in the *Parishramalayas* was small.

Age and Sex

11. The classification of the total number of spinners admitted by the *Parishramalayas* shows that 89.8 per cent. of the men and 76.5 per cent. of the women spinners were below 30 years while 68.3 per cent. of the men were in the age group of 19—30, and 45.6 per cent. of the women in this group. As against 30.9 per cent. of the women in the age group 9—18, only 21.5 per cent. of the men were in the age group of 12—18. The percentage of

spinners between 31 and 10 years as well as over 40, (men and women) was relatively small. The classification of the men and women spinners by their age-groups conclusively proves that hand-spinning on the Ambar Charkha is attractive to the bulk of the labour force in the rural areas and, unlike the traditional Charkha which was almost the exclusive monopoly of women, the Ambar Charkha can attract a sizeable number from among young men and engage them in productive activity. The region-wise variation in the percentage distribution of spinners by age and sex are set out in Table 5.

TABLE 5
Percentage distribution of Spinners by age and sex

Region	Males				Females			
	12-18 years	19-30 years	31-40 years	41 years & above	12-18 years	19-30 years	31-40 years	41 years & above
1. Bengal .	21.4	68.4	7.7	2.5	45.8	31.3	22.9	..
2. Andhra .	15.5	63.1	13.6	7.8	14.3	48.0	24.0	13.7
3. Karnatak .	26.1	63.0	7.6	3.3	30.0	46.3	19.4	4.3
4. Maharashtra .	33.3	57.7	6.3	2.7	17.6	50.0	17.6	14.8
5. Gujarat .	27.8	54.5	14.4	3.3	21.5	56.1	20.2	2.2
6. Malabar .	..	..	..	..	47.0	46.0	5.0	2.0
7. Tamilnad .	29.4	64.2	5.5	0.9	58.1	36.0	2.9	2.0
8. U.P. .	6.5	93.2	0.3	..	45.5	42.4	12.1	..
9. Utkal .	8.8	81.0	6.1	4.1	37.5	45.8	12.5	4.2
10. Punjab PEPSU	..	..	..	..	40.9	38.7	16.4	4.0
11. Bihar .	28.8	64.2	7.0	..	25.2	49.0	21.2	4.6
12. Madhya Bharat .	46.0	41.3	7.9	4.8	15.4	35.9	27.4	21.3
13. Rajasthan .	25.4	42.0	23.9	8.7	17.8	55.4	23.8	3.0
14. Hyderabad	40.0	40.0	..	20.0	33.3	66.7	..	..
All India	21.5	68.3	7.7	2.5	30.9	45.6	17.8	5.7

Size of the Parishramalayas

12. Although the Pilot Programme envisaged equipping each *Parishramalaya* with 60 Ambar Charkha sets to provide intensive training for 120 spinners at each, the number of Charkha sets supplied to the *Parishramalayas* as well as the number admitted for training varied widely from region to region and as between the units in the same region. The size of the *Parishramalayas* varied from 143 spinners (total number admitted in Hubli, Karnatak) to 18 spinners in Tamilnad, and the number of Ambar Charkha sets supplied to each *Parishramalaya* also varied very widely. Although the programme envisaged the establishment of 20 *Parishramalayas* during November and 30 during December 1955 the majority of the *Parishramalayas* could be started only between the second week of January 1956 and the first half of the February 1956, owing to the difficulties in the distribution of Ambar Charkha sets due to

inordinate delays in the transport of Charkha sets and their assembly at the *Parishramalayas*. Thus, the size of the *Parishramalayas* and the duration of the training provided by them varied considerably from region to region and between units in the same region.

Operational variation

13. Owing partly to the delayed start of the *Parishramalayas* in various regions, and partly to the late admission of a substantial number of spinners, the stipulated minimum period of 90 days of training and practice in the use of the Ambar Charkha and its accessories could not be provided to all the spinners. The majority of the *Parishramalayas* in the country worked on an average, for only 80 days except 9 *Parishramalayas*, each of which worked 90 days and over and 5 *Parishramalayas* each of which worked less than 60 days. In other words, the majority of the spinners received as against the minimum of three months' training (six weeks of training and six weeks of practice), the bare essentials of training in Ambar Charkha set without adequate practice. A point of additional significance which rendered the inadequacy of time even more important was the continued late admission of spinners, even when the time available for training them was altogether insufficient.

14. Out of the total number of 3,640 spinners working during the last fortnight, 845 spinners did not complete the minimum six weeks training in the Ambar Charkha and its accessories, and none could undergo the prescribed period of essential practice on the Ambar Charkha and its accessories. The frequency distribution shown in Statement 1 and Statement 2 together show that 65 spinners or a little less than 2 per cent. received training for a period of less than 25 days; 780 or 20 per cent. of the spinners barely completed the six weeks' course of training with no time whatever for practice on the Charkha set to acquire the minimum skill; 2,070 or 53 per cent. of the spinners had 4 weeks of practice after the completion of their basic training course; and only 1,005 or about 25 per cent. of the trainees practised for a little over 4 weeks but not the minimum period prescribed for practice.

Training and Productivity

15. As a result mainly of the inadequate and widely varied periods of training of the spinners in the same *Parishramalaya*, there were wide variations in the performance of spinners in the same *Parishramalayas*. Of the 1946 spinners who received full-training and limited practice, 501 or 25.7 per cent. attained a productivity rate of 6 to 7 hanks per day and 23 per cent. attained a speed of 8 hanks and above. As against this, a larger percentage of those, who had a longer practice of over 4 weeks, attained a productivity rate of 6 hanks and above. Thus of 906 spinners who fall into this category 34.3 per cent. of 311 spinners attained productivity of 6 hanks and 325 or 36 per cent. attained a speed of over 8 hanks per day. Thus, the data on 84 *Parishramalayas* summarised in Statement 1 throws into clear relief the positive correlation between training and

productivity of the spinners. The variation in the size and operational pattern of the *Parishramalayas* are faithfully reflected in the wide variations in the performance of the spinners. While over the whole country, 51 per cent. of the spinners who received training and practice for a minimum of 4 weeks attained a speed of 6 hanks and more per day of 8 hours, and 48 per cent. among them attained a speed of 8 hanks and above per day of 8 hours, the majority of the spinners who received training for 46 days and above were able to attain a speed of only 4-5 hanks per day. The regional variations in the percentage of spinners who attained a minimum productivity rate of 6 hanks and above per day of 8 hours are shown in Table 6.

TABLE 6

Region	Regional average	Highest	Lowest
1	2	3	4
1. Bengal	30.3	45.2	19.3
2. Andhra	15.7	52.6	12.7
3. Karnatak	47.2	66.0	5.1
4. Maharashtra	9.5	29.0	12.5
5. Gujerat	34.1	67.2	5.9
6. Malabar	42.1	70.0	8.1
7. Tamilnad	58.7	100.0	5.5
8. Uttar Pradesh	78.1	100.0	38.4
9. Utkal	36.7	48.4	28.8
10. Punjab PEPSU	7.6	19.7	3.0
11. Bihar	59.7	100.0	8.5
12. Madhya Bharat	28.5	54.1	3.6
13. Rajasthan	58.7	52.4	13.2
14. Hyderabad . . . . .	..	..	..
15. Delhi.	7.8	..	..

17. That the analysis presented above correspond to reality can be easily seen from the data on the work and output of the spinners set out in Statement II. In every region where, *Parishramalayas* operated, the output per hour of the spinners with incomplete training was considerably lower than that of those who had either complete training or complete training with limited practice. The abstract of Statement II (Table 7), which sets out the region-wise average productivity per hour, brings out clearly that the main reason for the failure of the majority of the spinners to attain the desired rate of productivity was training and training alone.

Average Productivity

18. The details of the work and output summarised in Statement II relate only to composite spinning performance of the spinners in the output per spinner from carding to spinning. The abstract of Statement II (Table 7) presents the region-wise frequency distribution of spinners in accordance with their respective periods of training and the average region-wise output per hour. The data

show that as against the All-India average productivity per spinner of 0.64 hanks of yarn per hour or 5.12 hanks of yarn per day of eight hours, those who received full training and over four weeks' but less than the prescribed minimum of six weeks' practice had an average productivity rate of 0.75 hanks per hour or 6 hanks per day of eight hours; those who had training and about 4 weeks' practice a productivity rate of 5.2 hanks per day and those who barely completed training about only 4 hanks per day. The All-India trends, this analysis brings out into sharp relief, is true of every group of trainees in every region of which data are available. Thus, the frequency distribution of spinners conclusively proves that the inadequacy of practice was the primary reason for the relatively lower productivity of the spinners.

19. The trends in the rate of output per spinner in each group of trainees warrant the inference that the continuation of the *Parishramalayas* for one additional month and the collection of data on the output of spinners during the subsequent fortnight would have provided a completely different picture and a more reliable basis for an objective assessment of the productivity of the spinners on the Ambar Charkha.

Variations in output

20. Although the average output per spinner has been smaller than 8 hanks of yarn per day of 8 hours, many *Parishramalayas* had a sizeable number of spinners whose output considerably exceeded the rate. Where the quality of the raw cotton supplied or locally available was satisfactory, output per day reached as high as 16 hanks of yarn from carding to spinning in Rajasthan, 15 hanks in Bihar and Tamilnad, 14 hanks in U.P., 12 hanks in Karnatak and well above 8 in several other regions as shown in the Abstract of Statement I. The analysis of the data on the output presented in Statement I shows that while the performance of the spinners in Uttar Pradesh, Bihar, Tamilnad, Malabar and Hubli and certain *Parishramalayas* in Rajasthan and Madhya Bharat was uniformly good, approximating or exceeding the rate of 8 hanks of yarn per day of 8 hours from carding to spinning, the average productivity rate in Bengal, Andhra, Maharashtra and a few centres in Gujerat and Karnatak was uniformly poor. The productivity rate attained by Utkal and Punjab and PEPSU regions was lower than the all-India average. The main reason for the relatively poorer performance of these *Parishramalayas* other than the inadequacy of training already explained above, was the poor quality of cotton available to most of them and the inability of the *Parishramalayas* owing to the lack of time to obtain better variety or at any rate cleaner local varieties of raw cotton. In Maharashtra, Andhra and Karnatak in particular, the productivity of the spinners was low owing to the very poor quality of raw cotton available to them from local sources. Thus, the quality of raw cotton was responsible for the relatively poorer performance of many *Parishramalayas* which started early enough to show better results.

21. Of some importance to the productivity rate attained by spinners is the time during which data were collected. Owing to

severe heat in most regions of the country during the months of March and April, a very large number of spinners were disabled by diseases such as dysentery, small-pox, chicken-pox and other diseases. Moreover, as these months coincided with the occurrence of the new year several religious festivities and also the marriage season, attendance of the *Parishramalayas* as well as regularity of work was poor.

Cotton and counts

22. The available data on the quality and quantity of cotton supplied to the various *Parishramalayas* are inadequate to present detailed analysis of cotton used and the counts spun. By and large, the average count of yarn spun by the *Parishramalayas* was 18's though the lowest count spun was 10's from Deshi cotton and highest spun was 84's from Surti. The main counts of yarn spun from various varieties of Jarilla ranged between 14's and 20's from Karungani, 13's to 18's, Cambodia 16's to 23's, from Vijay 18's to 20's and from Wardha-Nawsari 12's to 20's.

23. The scrutiny of the data in the wastage of cotton in the process of carding and spinning shows wide variation between region to region and between different units in the same region. The main cause of the variation in the percentage of wastage from unit to unit was the quality of the raw cotton. While the percentage of wastage was as small as 4 per cent. for good qualities such as Surti and Vijaya, it was as high as 25 per cent. for varieties such as red cotton and Jayadav. By and large, wastage, of raw cotton was reported to average 16 per cent., though detailed analytically acceptable data on the supply of raw cotton, weight of yarn spun, balance of slivers etc. are not available.

Organization and Distribution

24. One of the main problems in the implementation of the Ambar Charkha Pilot Programme, particularly the establishment of the *Parishramalayas* to schedule, was the problem of the supply of the Ambar Charkha sets to each area in time. Owing to the inordinate delays in transport, Charkha sets could not reach the *Parishramalayas* in time and, consequently, training of the spinners could not be undertaken expeditiously. The limitation of time prevented training of an adequate number of local carpenters or mistries to set right defective Ambar Charkha sets or to prevent wrong assembly. Moreover, with only 14 Ambar Charkha *Saranjam* centres, the supply of Charkha sets to the whole country presented many irksome problems, underlining the need for regional self-sufficiency in *Saranjam* centres. The delay in the arrival of Charkha sets, the absence of trained local carpenters to assemble them right and also the lack of local sources of supply of spare parts together prevented effective functioning of the *Parishramalayas* and the provision of the prescribed training and practice in full.

25. The report on the first two parts of the programme presented in the earlier pages emphasises the need for adequate training and practice on the Ambar Charkha set to attain a daily productivity

of 8 hanks of yarn. The trends discernible from the data on the working of the *Parishramalayas* show that with longer practice the output of the majority of the spinners may have approximated the desired minimum.

To ensure the provision of extensive and expeditious training to spinners on the Ambar Charkha, *Saranjam Karyalayas* should as far as possible be set up on a region-wise basis, as reliance on distant sources of supply result in avoidable delays.

To maintain the output per hour of the desired level, adequate arrangements for the supply of appropriate raw cotton to production centres are essential.



STATEMENT I

Parishramalaya	No. of days worked	Age group	No. of spinners	Twining and productivity per day of 8 hours														Summary		Maxm. Col. speed, 17 as per % of 6	Col. 18 as % of 6	Col. 19 as % of 6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
				Between 45 and 75 days								76 days and above																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
				Male	Female	Total	Below 4 hrs	4 hrs	4-5 hrs	5-6 hrs	6-7 hrs	7-8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & above	8 hrs	8 hrs & 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X	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
Karnatak—																												
12. Hubli	.	.	144	16-52	30	69	99	1	14	10	..	25	1	9	35	21	66	45	21	66	13	45	0	21	0	66	0	
13. Anekal, Bangalore	.	.	102	18-40	14	25	30	1	12	13	..	24	..	2	26	..	2	2	8	..	5	1	5	1	5	1
14. Gurlhoor, Belgaum	.	.	128	18-42	33	49	82	..	1	3	1	5	..	6	22	10	38	25	11	36	10	30	5	13	4	43	9	
<hr/>																												
TOTAL	77	143	220	2	27	13	1	43	1	39	57	33	130	70	34	104	..	31	8	15	4	47	2	

Maharashtra—

15. Mandargi, Sholapur . .	118	12-60	21	28	49	35	..	..	..	35	25	..	..	..	25	..	..	..	4	..	..	..	..	..
16. Patankar Ahmednagar . .	14	45	38	6	44	6	14	5	6	31	5	6	11	10	13	1	15	9	29	0
17. Jategaon, Naulk . . .	14	42	24	..	24	4	8	3	..	15	..	..	..	..	..	3	..	3	7	12	5	..	12	5
18. Parola, H. Kandesh . .	56	18-55	31	..	31	12	17	29	5	

TOTAL

	114	34	148	57	39	8	6	110	25	25	8	6	14	..	5	4	4	1	9	5	
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Gujarat—

19. Rajpur, Ahmedabad	..	14-48	34	34	10	15	2	..	27	2	..	2	6	5	9	..	5	9		
20. Mahipatram, Ahmedabad	..	16-42	61	61	6	9	7	8	30	6	7	14	3	30	28	21	11	32	11	34	4	18	0	52	4	
21. Nadiad, Kera	.	77	16-49	33	31	64	2	11	20	3	36	2	6	11	9	8	31	12	43	8	48	4	18	8	67	2
22. Nadiad, Khara	.	..	17-40	6	15	21	9	3	..	..	12	7	1	..	..	..	..	..	4	..	..	..	..	..	..
23. Gunja, Mehsane	.	84	12-50	15	38	53	5	21	10	2	38	..	..	2	..	12	2	14	8	22	6	3	8	26	4
24. Karari, Surat	.	92	15-43	69	9	78	19	16	6	1	42	4	8	5	3	20	11	4	15	9	14	1	54	2	19	2
<hr/>																										
TOTAL	.	..	123	188	311	51	75	45	14	185	19	22	32	15	88	77	29	106	..	24	8	9	3	34	1	

Malabar—

25. Meenchanta, Kozhikode	88	14-42	2	35	37	1	2	..	..	3	..	13	2	1	16	2	1	3	8	5.4	2.7	8.1
26. Elipalle, ..	88	13-35	..	30	30	1	5	8	2	16	..	..	3	8	11	11	10	21	10	36.7	33.3	70.0
27. Madapollare, Palghat	67	14-30	..	21	21	..	7	8	5	20	..	..	..	..	..	8	5	13	10	38.1	23.8	61.9

TOTAL 2 86 88 2 14 16 7 39 .. 13 5 9 27 21 16 37 .. 23.9 18.2 42.1

Tamilnad—

28. Velampalayam, Madras	104	10-50	..	44	44	1	8	6	..	15	..	..	6	7	13	12	7	19	9	27.3	15.9	43.2
29. Nanagondanvalasu	72	14-35	13	3	16	5	8	3	..	15	..	..	..	..	..	3	..	3	6	18.8	..	18.8
30. Veerapandi, Madras	..	13-30	..	26	26	..	2	2	4	8	..	..	2	12	14	4	16	20	10	15.4	61.5	76.9
31. Sedapalayam, Madras	65	12-40	6	36	42	1	5	14	9	29	..	..	..	..	..	14	9	23	11	33.3	31.4	54.6
32. Pudukalayam, Madras	59	12-45	8	5	13	2	2	..	..	4	..	..	..	..	..	..	..	..	4	..	..	..
33. Santharapandyapuram	84	14-29	17	9	26	..	..	1	13	14	..	..	..	12	12	1	25	26	15	3.8	96.2	100.0
34. Karivalamvundapollare	64	12-31	20	31	51	4	9	6	32	51	..	..	..	..	..	6	32	38	11	11.7	62.7	74.4
35. Kunnur, Madras	78	10-50	30	10	40	..	..	3	25	28	..	..	7	5	12	10	30	40	11	25.0	75.0	100.0
36. Kulampalayam, Madras	72	12-28	6	16	22	..	4	5	6	15	..	..	..	..	..	5	6	11	11	22.7	27.3	50.0
37. Keshilingampalayam	73	14-47	6	15	21	..	1	6	12	19	..	..	..	..	..	6	12	18	11	28.6	57.2	85.8
38. Natanvalasu Madras	51	11-40	10	27	37	..	7	6	4	17	..	..	..	..	..	6	4	10	12	16.2	10.8	27.0
39. Attappalam, Madras	66	N.A.	18	..	18	3	1	1	..	5	..	..	..	..	..	1	..	1	6	5.5	..	5.5

TOTAL 134 222 356 16 47 53 105 221 .. 15 36 51 68 141 209 .. 19.1 39.6 58.7

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Uttar Pradesh—																						
40. Gandhi A Meerut	83	18-35	42	8	50	..	5	9	9	23	..	3	7	14	24	16	23	39	11	32-00	46-0	78-0
41. Hapur U.P.	83	14-40	30	14	44	..	..	..	..	..	1	4	21	18	44	21	18	39	14	47-7	40-90	88-6
42. Hapur U.P.	83	18-35	30	20	50	..	1	..	..	11	11	12	13	13	49	13	23	36	10	26-0	46-0	72-0
43. Bulandshahr	..	14-24	72	7	79	..	10	35	30	75	..	1	..	..	1	35	30	65	10	44-3	37-9	82-2
44. Aligarh	77	19-30	35	..	35	..	8	9	1	18	..	4	11	2	17	20	3	23	10	57-1	8-5	65-6
45. Raipur, Sreampur	70	17-30	37	..	37	..	..	14	18	32	..	..	..	3	3	14	21	35	13	37-8	56-7	94-5
46. Raipur, Sreampur	70	18-25	40	..	40	..	..	17	23	40	..	..	..	..	..	17	23	40	12	42-5	57-5	100-02
47. Kandiyanji, Aligarh	77	18-24	39	..	39	5	17	13	2	37	..	..	..	..	..	13	2	15	10	33-3	5-1	38-4
48. Muzaffabad	..	18-30	69	..	69	7	8	13	8	36	1	13	13	9	36	26	17	43	12	37-6	24-6	62-1
49. Nagina Bijnore	..	19-25	76	..	76	..	3	13	26	42	..	..	7	24	31	20	50	70	12	26-3	65-8	92-1
TOTAL	..	..	470	49	519	12	52	123	117	304	13	37	72	83	205	195	210	405	..	37-6	40-5	78-1
Uttar—																						
50. Kustupal	62	16-50	41	9	50	..	1	6	10	17	..	..	..	..	..	6	10	16	9	12-0	20-0	32-0
51. Digbati, Puri	59	13-30	60	..	60	..	11	16	13	40	..	..	..	..	..	16	13	29	10	26-7	21-7	48-4
52. Buhari, Bahore	64	15-50	51	8	59	2	12	10	7	31	..	..	..	..	..	10	7	17	12	16-9	11-9	28-8
TOTAL	..	..	152	17	169	2	24	32	30	88	..	..	..	..	..	32	30	62	..	18-9	17-8	36-7
Punjab and Pepsu—																						
53. Ambala City	84	12-50	..	67	67	21	5	..	..	26	1	12	2	..	15	2	..	2	6	3-0	..	3-0
54. Coonoor	80	16-50	..	80	80	33	3	..	..	36	21	1	..	..	21	..	..	..	5	..	..	..
55. Rajpura	80	13-41	..	78	78	5	17	13	2	37	..	..	..	..	..	13	2	15	10	16-7	3-0	19-7
TOTAL	..	..	..	225	225	59	25	13	2	99	22	13	2	..	37	15	2	17	..	6-7	0-9	7-6

Bihar—

56. Simari, Darbhanga	82 18-35	87	10	47	..	5	1	2	8	..	2	9	29	40	10	31	41	15	21-3	68-0	87-3
57. Laigam}	.. 17-50	30	8	38	..	2	2	..	4	..	4	12	18	34	14	18	32	13	37-0	47-3	84-3
58. Pusa Rd	84 13-40	..	44	44	..	..	..	12	12	..	..	..	12	12	..	25	25	12	..	56-8	56-8
59. Sansaripur	85 11-40	14	26	40	..	..	5	12	17	..	..	8	15	23	13	27	40	12	32-5	67-5	100-0
60. Pooa Rd	84 12-19	39	..	39	5	29	..	..	34	..	5	..	..	5	..	..	..	5	..	..	..
61. Shahpur	86 16-40	18	21	39	..	..	..	..	..	3	8	21	7	39	21	7	28	10	53-8	17-9	71-7
62. Kapasia	85 18-45	30	9	39	..	..	..	..	..	..	4	27	8	39	27	..	35	12	69-2	20-5	89-7
63. Karpula	76 16-40	31	8	39	..	4	10	35	39	..	..	..	..	..	..	..	..	12	..	..	..
64. Pidakh, Mahmudpur	.. 18-40	36	5	41	..	2	..	1	3	..	1	17	20	38	17	21	38	12	41-5	31-2	93-7
65. Madhepur	85 11-45	18	19	37	6	..	5	2	14	4	6	9	4	23	15	6	21	8	40-5	16-2	56-7
66. Maibolia, Darbhanga	81 14-56	..	38	38	..	1	10	14	25	..	1	2	4	7	12	18	30	9	31-6	47-4	79-0
67. Narainipur, Muzaffarpur	84 11-25	27	10	37	..	..	..	4	4	..	..	7	27	33	11	26	37	12	29-7	70-3	100-0
68. Sipamachi, Muzaffarpur	85 12-40	24	15	89	..	2	..	..	2	1	10	10	13	34	10	13	23	12	25-6	33-5	58-9
69. Jagannathpur, Ranchi	.. 15-20	17	5	22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
70. Patna	70 12-40	25	12	37	..	1	26	11	38	..	..	..	..	..	26	11	37	10	70-3	29-7	100-0
71. Mooghir	80 12-45	3	37	40	1	8	..	4	13	2	7	12	16	27	12	10	22	9	30-0	25-0	53-0
72. Sulanganj	.. 16-30	22	18	40	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
73. Ranipatra, Purnia	85 10-40	11	12	23	9	9	..	..	18	..	7	..	2	9	..	2	2	8	..	8-5	8-5

TOTAL 382 307 689 21 63 60 87 231 10 55 134 165 364 188 3 411 .. 27-3 32-4 59-7

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Madhya Bharat—																						
74. Sabalghar, Mureira	74	12-56	10	10	20	...	18	...	7	25	...	...	...	...	...	...	7	7	11	...	35'0	35'0
75. Shopuri	82	12-55	17	44	61	1	4	21	7	33	...	...	5	...	5	26	7	33	9	42'6	11'5	54'1
76. Shajapur	67	11-52	23	17	40	11	10	2	...	23	...	...	...	...	...	2	...	2	8	5'0	...	5'0
77. Nimuch, Mandore	79	14-60	2	25	27	2	4	4	3	13	...	2	...	...	2	4	3	7	11	14'8	11'1	25'9
78. Khargone, Neemad	82	12-55	4	24	28	12	8	1	...	21	...	1	...	...	1	1	...	1	6	3'6	...	3'6
TOTAL	...	...	56	120	176	26	44	28	17	115	...	3	5	...	8	33	17	50	...	18'8	9'7	28'5
Rajasthan—																						
79. Khadibag, Jaipur	83	14-40	31	37	68	4	26	13	12	55	...	3	8	2	13	21	14	35	11	30'9	20'6	51'5
80. Samod, Jaipur	81	10-50	39	27	66	...	29	28	13	60	...	...	...	...	...	28	13	41	9	42'4	9'9	52'3
81. Savai Madhavpur, Karoul	...	16-40	14	28	42	9	8	7	14	38	1	...	...	1	2	7	15	22	16	16'7	35'7	52'4
82. Udaipur	76	10-51	63	13	76	10	6	5	...	21	...	...	5	...	5	10	...	10	7	13'2	...	13'2
TOTAL	...	...	116	68	184	23	59	53	39	174	1	3	13	3	20	66	42	108	...	35'9	22'8	58'7
Hyderabad—																						
83. Metupalli	82	12-55	10	12	22	...	...	...	...	...	...	...	...	...	...	...	...	...	7	...	...	...
TOTAL	...	...	10	12	22	...	...	...	...	...	...	...	...	...	...	...	...	...	7	...	...	...
Delhi—																						
84. Narela	...	...	52	12	64	30	31	5	...	66	...	...	...	...	...	5	...	5	7	7'8	...	7'8
TOTAL	...	...	52	12	64	30	31	5	...	66	...	...	...	...	...	5	...	5	...	7'8	...	7'8
GRAND TOTAL	...	...	1911	1729	3640	431	570	591	444	1946	99	171	311	325	906	816	775	1591	...	22'4	21'3	43'7

B. Column No. 17—Col. No. 9+Col. No. 14.
Column No. 18—Col. No. 10+ Col. No. 15.

ABSTRACT OF STATEMENT NO. 1

TRAINING AND PRODUCTIVITY

Region	Age range	Between 46 and 75 days										76 days and above		Summary		Pro-duc-tivity range per day.		
		Men	Women	Total	Below 4 hrs.	4 hrs. & above	Below 4 hrs.	4 hrs. & above	Below 4 hrs.	4 hrs. & above	Below 4 hrs.	4 hrs. & above	6-7 hrs.	7 hrs. & above	Total 6-7 hrs. & above			
I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Bengal	9-48	107 (117)	51 (54)	158 (171)	25	38	35	4	102	2	3	5	3	13	40	7	47	7-10
Percentage to respective totals		67.7	32.3	..	24.5	37.3	34.3	3.9	..	15.4	23.1	38.4	27.1	..	85.1	14.9	..	..
2. Andhra	12-55	116 (125)	195 (219)	311 (344)	107	58	27	15	207	7	16	6	1	30	33	16	49	2-9
Percentage to respective totals		..	37.3	62.7	..	51.7	28.0	13.0	7.3	..	23.3	53.3	20.0	3.4	..	67.3	32.7	..
3. Karnatak	16-52	77 (78)	143 (148)	220 (226)	2	27	13	1	43	1	39	57	33	130	70	34	104	8-13
Percentage to respective totals		..	35.0	65.0	..	4.7	62.8	30.2	2.3	..	0.8	30.0	43.8	25.4	..	67.3	32.9	..
4. Maharashtra	12-60	114 (127)	34 (44)	148 (171)	57	39	8	6	110	25	..	..	..	25	8	6	14	4-10
Percentage to respective totals		77.0	23.0	..	51.8	35.5	7.3	5.4	..	100.0	..	..	..	..	59.1	40.9	..	..

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
5. Gujarat	12-50	123 (127)	188 (194)	311 (324)	51	75	45	14	185	19	22	32	15	88	77	29	106	4-11
Percentage to respective totals	39.6	60.4	..	27.6	40.5	24.3	7.6	7.6	..	21.6	25.0	36.4	17.0	..	72.8	27.2	..	..
6. Malabar	13-42	2 (2)	86 (87)	88 (89)	2	14	16	7	39	..	13	5	9	27	21	16	37	8-10
Percentage to respective totals	2.3	97.7	..	5.1	35.8	41.2	17.9	..	..	48.1	18.6	33.3	..	56.8	43.2	..	..	..
7. Tamilnad	10-50	134 (135)	222 (227)	356 (362)	16	47	53	105	221	..	..	15	36	51	68	141	209	4-15
Percentage to respective totals	37.7	60.3	..	7.2	21.3	24.0	47.5	..	..	..	29.4	70.6	..	32.5	67.5	..	..	..
8. Uttar Pra- desh.	14-35	470 (473)	49 (49)	519 (522)	12	52	123	117	304	13	37	72	83	205	195	210	405	10-14
Percentage to respective totals	90.6	9.4	..	3.9	17.1	40.5	38.5	..	6.3	18.0	35.1	40.6	..	48.2	51.8	..	..	..
9. Utkal	13-50	152 (165)	17 (18)	169 (183)	2	24	32	30	88	..	..	..	..	..	32	30	62	9-12
Percentage to respective totals	89.6	10.4	..	2.3	27.3	36.4	34.0	..	..	..	..	..	..	..	51.8	48.2	..	..

10. Punjab— 225 225 59 25 13 2 99 22 13 4 .. 37 15 4 17 3—18
Pepsi. .. (225) (226)

Percentage to
respective
totals

.. 100.0 .. 59.6 25.3 13.1 2.0 .. 59.5 33.1 5.4 .. 88.2 11.8 ..
11 Bihar 382 307 689 21 83 86 87 231 10 55 134 165 364 188 223 411 5—15
(387) (307) (694)

Percentage to
respective
totals

55.5 44.5 .. 9.1 27.3 26.0 37.6 .. 2.7 15.1 36.8 45.4 .. 45.8 54.2 ..
12 Madhya 56 120 176 26 44 28 17 115 .. 3 5 .. 8 33 17 50 6—11
(64) (135) (199)

Percentage to
respective
totals

31.9 68.1 .. 22.6 38.3 24.3 14.8 .. 37.5 62.5 .. 66.0 34.0 ..
13 Rajasthan 10—51 116 68 184 23 59 53 39 174 1 3 13 3 20 66 42 108 7—16
(120) (169) (184)

Percentage to
respective
totals

63.0 37.0 .. 13.2 33.9 30.5 22.4 .. 5.0 15.0 65.0 15.0 .. 61.9 38.1 ..
14 Hyderabad 12—55 16 12 23 7

Percentage to
respective
totals

45.4 54.6
15 Delhi 52 12 64 30 31 5 .. 66 5 .. 5 7
(54) (12) (66)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Percentage to respective totals																		
ALL TOTAL																		
	81.8	18.2	..	45.5	47.0	7.5	..	..	..	..	..	..	..	..	..	..	100.0	..
	1911	1729	3640	431	570	501	444	1946	99	171	311	325	906	816	775	1591		
	(1984)	(1804)	(3788)															
Percentage to respective totals																		
	52.5	47.5	..	22.1	29.3	25.7	22.9	..	10.9	18.9	34.3	35.9	..	51.3	48.1	..		

NOTE: The figures within brackets show number of spinners present during the last but one fortnight.

FREQUENCY DISTRIBUTION OF SPINNERS

...	4	279	96	37	3
...	14	1397	555	11	1
...	24	2676	1248	12	1
...	1	60	52	40	4

सत्यमेव जयते

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
KARNATAK															
12. Hubli . . . . .	.	.	.	11	982	584	26	2227	1509	65	6091	4973	102	9300	7066
13. Anekal, Bangalore . . . . .	.	.	.	28	2372	948	18	1278	705	26	1898	1202	72	5148	2855
14. Gurhosur . . . . .	.	.	.	39	4372	2487	5	521	404	38	3733	3155	82	8626	6046
	.	.	.	78	7726	4019	49	4026	2618	129	11722	9330	256	23474	15967
MAHARASHTRA															
15. Mandargi . . . . .	.	.	.	5	375	206	21	1434	833	21	1651	1187	47	3460	2226
16. Patankar . . . . .	.	.	.	13	1048	373	30	2727	1262	.	.	.	43	3775	1635
17. Jategaon	1	82	41	9	686	358	13	991	557	.	.	.	23	1759	956
18. Parola . . . . .	.	.	.	.	.	.	30	2888	2348	.	.	.	30	2888	2348
	1	82	41	27	2109	937	94	8040	5000	21	1651	1187	143	11882	7165
GUJERAT															
19. Raipur . . . . .	.	.	.	5	300	248	28	1680	1586	.	.	.	33	1980	1834
20. Mahipatram	2	240	32	2	240	131	26	3120	2192	31	3720	2350	61	7320	4705
21. Nadiad . . . . .	.	.	.	1	40	17	45	4137	1203	39	3971	2453	85	8148	5173
22. Nadiad . . . . .	.	.	.	.	.	.	32	3547	4222	32	3568	4164	64	7115	4380
23. Goonja	5	321	88	10	544	164	35	2294	795	3	260	67	53	3419	1114
24. Zaveri, Surat . . . . .	.	.	.	17	1439	651	43	3809	1895	18	1464	926	78	6712	3412
	7	561	120	35	2563	1211	209	18587	11393	123	12983	7960	374	34694	20684
MALABAR															
25. Meenchank . . . . .	.	.	.	18	2008	590	3	328	135	16	1834	928	37	4170	1653
26. Elapalle . . . . .	.	.	.	3	320	129	16	1842	881	11	1218	688	30	3450	1698
27. Mudalpooloor . . . . .	.	.	.	3	200	110	18	2056	1265	.	.	.	21	2256	1375
	.	.	.	24	2528	829	37	4226	2281	27	3122	1616	88	9876	4726

TAMILNAD

28. Valampalayam	.	.	.	.	17	1736	1181	14	1640	1014	18	2144	1769	49	5520	3964
29. Nainagondanvalasu	.	.	.	.	..	..	..	10	756	561	..	..	..	10	756	561
30. Veerapandi	.	.	.	.	5	438	333	8	738	656	13	1416	1519	26	2592	2508
31. Sedapalayam	.	.	.	.	13	1457	982	29	3039	2753	..	..	..	42	4496	3735
32. Pudupalayam	.	.	1	54	8	842	259	4	446	192	..	..	..	13	1342	465
33. Sankarapandiapuram	.	1	89	141	..	..	..	7	591	682	18	1843	2401	26	2523	3224
34. Karvalamvandanellore	.	3	100	86	3	188	200	46	4129	3799	..	..	..	52	4417	4085
35. Kunnur	.	..	..	..	3	201	241	25	2110	2220	12	1221	1220	40	3532	3681
36. Kullampalayam	.	..	..	..	7	792	837	15	1776	1554	..	..	..	22	2568	2391
37. Kasilingapalayam	.	..	..	..	2	240	194	19	2096	2081	..	..	..	21	2336	2275
38. Nattanvalasu	.	1	8	8	14	1256	807	16	1684	1417	..	..	..	31	2948	2232
39. Arthipakam	.	3	184	52	8	488	156	4	366	144	..	..	..	15	1038	352
	9	435	301	80	7638	5190	197	19371	17073	61	6624	6909	347	34068	29473	

UTTAR PRADESH

40. Meerut	.	.	.	.	3	302	163	25	2522	1728	22	2278	1766	50	5102	3657
41. Hapur	.	1	26	15	..	..	..	..	..	..	48	4738	2605	49	4764	2620
42. Hapur	.	..	..	..	..	..	..	44	3987	2899	..	..	..	44	3987	2899
43. Bulandashahar	.	..	..	..	4	414	193	75	7397	4996	..	..	..	79	7811	5189
44. Aligarh	.	..	..	..	..	..	..	18	1159	780	17	1118	788	35	2277	1568
45. Rampur	.	..	..	..	1	118	74	39	3832	2782	..	..	..	40	3950	2856
46. Rampur	.	..	..	..	2	56	39	32	3117	2383	3	342	296	37	3515	2718
47. Kaudisganj	.	..	..	..	1	84	53	36	1960	1444	..	..	..	37	2044	1497
48. Muradabad	.	..	..	..	..	..	..	33	4177	2148	35	3971	2737	68	8248	4885
49. Nagina	.	..	..	..	1	37	23	45	4625	3224	30	3129	2646	76	7801	5893
	1	26	15	12	1011	545	347	32776	22384	155	15586	10838	515	42399	33782	

I 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

UTKAL

50. Kushiapal	2	152	42	50	5424	2238	53	7108	3031	..	..	..	105	12744	5311
51. Dighari	2	176	77	17	1880	758	41	4656	2663	..	..	..	60	6712	3498
52. Duhari	3	296	100	22	2328	1013	32	3348	2238	..	..	..	57	5972	3351
53. Beguniapath	5	328	119	33	3248	1270	76	9044	3876	..	..	..	114	12620	5265
	12	952	338	122	12880	5279	202	24216	11808	..	..	..	336	38048	17425

PUNJAB—PEPSU

54. Ambala City	1	60	13	20	1910	552	31	2930	1438	15	1386	1115	67	6286	3108
55. Coornool . . . . .	..	..	..	22	1819	700	36	2417	1770	22	1993	1203	80	6229	3673
56. Rajpura	1	77	34	30	2859	1480	32	3099	2146	15	1381	963	78	7416	4633
	2	137	47	72	6588	2732	99	8446	5344	52	4760	3291	225	19931	11414

BIHAR

57. Simari . . . . .	..	..	..	..	..	..	9	768	437	39	4536	3913	48	5304	4350
58. Lalgañi . . . . .	..	..	..	..	..	..	3	184	93	36	3164	2840	39	3348	2933
59. Pusa Road . . . . .	..	..	..	..	..	..	34	1582	1426	5	292	265	39	1874	1691
60. Samashpur . . . . .	..	..	..	..	..	..	16	1504	1377	24	2300	2034	40	3804	3411
61. Pusa Road	1	48	48	18	2160	1604	11	1070	1113	13	1414	1575	43	4692	4292
62. Shahpur . . . . .	..	..	..	..	..	..	..	..	..	39	4166	2084	39	4166	2084
63. Kapasia . . . . .	..	..	..	..	..	..	3	307	255	37	3956	3503	40	4263	3758
64. Kamola . . . . .	..	..	..	..	..	..	39	3349	3228	..	..	..	39	3349	3228
65. Mohamadpur . . . . .	..	..	..	..	..	..	3	227	103	38	3695	3847	41	3922	3950

66. Madhepur	.	.	.	.	.	.	.	.	.	13	935	696	21	1932	1391	34	2867	2087
67. Najholia	.	.	.	.	.	6	392	389	.	30	2059	2027	2	140	133	38	2591	259
68. Narsinghpur	.	.	.	.	.	.	.	.	.	4	287	257	23	2438	2055	37	2725	2312
69. Sitamarhi	.	.	.	.	.	3	360	208	.	2	240	99	34	4200	3163	39	4800	3470
70. Jagannathpur	.	.	2	48	9	19	2046	566	.	.	.	.	.	.	.	21	2094	3575
71. Patna	.	.	.	.	.	.	.	.	.	37	3976	2740	.	.	.	37	3976	2740
72. Monghyr	.	.	.	.	.	.	.	.	.	12	1027	538	28	2728	1381	40	3755	1919
73. Sultanganj	.	.	2	240	90	38	4560	2148	.	.	.	.	.	.	.	40	4800	2238
74. Ranipatra	.	.	.	.	.	1	27	22	12	722	611	10	715	643	23	1474	1276	
	5	336	147	85	9545	4937	228	18237	15000	359	35676	28827	677	63794	84911			

MADHYA BHARAT

75. Sabalgarh	.	.	.	.	.	.	.	.	.	22	2528	1899	.	.	.	22	2528	1899
76. Shivpuri	.	.	.	.	.	23	1766	1193	.	33	2729	2348	550	550	428	61	5045	3969
77. Shahapur	.	.	.	.	4	208	93	13	1240	481	22	1848	882	.	.	39	3296	1456
78. Nermuch	.	.	.	.	4	196	121	9	587	395	11	1143	967	2	228	26	2154	1643
79. Khargon	7	551	155	22	1476	686	1	100	42	30	2127	883
	8	404	214	52	4144	2224	110	9724	6782	8	878	630	178	15150	9850				

RAJASTHAN

80. Khadi Baug	1	53	35	54	5547	4595	13	1136	950	68	6736	5380			
81. Kamod	7	656	396	59	5926	3741	..	..	..	66	6582	4137			
82. Savaimadhaopur	1	80	13	..	31	2480	1923	8	640	437	40	3200	2373		
83. Udaipur	17	1367	466	20	1532	569	22	1759	885	5	361	258	64	5019	2178
	18	1447	479	28	2241	1000	166	15712	11144	26	2137	1645	238	21537	14268

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
HYDERABAD																
84. Metpalli	22	2177	1786	..	..	..	..	..	..	22	2177	1786
	22	2177	1786	..	..	..	..	..	..	22	2177	1786
Dalul																
85. Narela	32	3847	1904	31	3750	1854	..	..	..	68	7597	3758
	32	3847	1904	31	3750	1854	..	..	..	63	7597	3758
GRAND TOTAL	.	65	4564	1747	780	75141	36180	2070	195372	126959	1005	99816	75026	3920	374893	239912

TABLE 7
TRAINING WORK AND OUTPUT

No. of training (days)		1 to 25		26 to 45		46 to 75		76 & above		Total										
Region	No.	Dura- tion of work (Hrs.)	Pro- duc- tion per hour (Hrs.)	No.	Dura- tion of work (Hrs.)	Pro- duc- tion per hour (Hrs.)	No.	Dura- tion of work (Hrs.)	Pro- duc- tion per hour (Hrs.)	No.	Dura- tion of work (Hrs.)	Pro- duc- tion per hour (Hrs.)	Rate per hr.							
1. Bengal	...	...	...	48	4412	1951	0.44	100	10141	6187	0.61	13	1441	946	0.65	15994	9084	0.56		
2. Andhra	2	184	45	0.24	68	5732	1636	0.28	201	18120	8091	0.45	31	3236	1847	0.57	302	27272	11619	0.43
3. Karnataka	...	...	...	78	7726	4059	0.52	49	4026	2618	0.65	129	11722	9330	0.79	256	23574	15967	0.68	
4. Maharashtra	1	82	41	0.50	27	2109	937	0.44	94	8040	5000	0.62	21	1651	1187	0.71	143	11882	7165	0.60
5. Gujarat	7	561	120	0.21	35	2563	1211	0.47	209	18587	11394	0.61	123	12983	7960	0.61	374	34694	20684	0.59
6. Malabar	...	...	...	24	2528	829	0.33	37	4226	2281	0.54	27	3122	1616	0.51	88	9876	4726	0.47	
7. Tamil Nad	9	435	301	0.69	86	7638	5190	0.68	197	19371	17073	0.88	61	6624	6909	1.04	347	34068	29473	0.87
8. Uttar Pradesh	1	26	15	0.57	12	1011	545	0.53	347	32776	22384	0.68	155	15586	10838	0.70	515	49399	33782	0.68
9. Utikal	12	952	338	0.35	122	12880	5279	0.41	202	24216	11808	0.49	...	...	...	...	336	38048	17425	0.46
10. Punjab-Pespu	2	137	47	0.34	72	6588	2732	0.41	99	8446	5344	0.63	52	4760	3291	0.69	225	19931	11414	0.57
11. Bihar	5	336	147	0.44	85	9545	4937	0.52	228	18237	15000	0.82	359	35676	28827	0.81	677	63794	48911	0.77
12. Madhya Bharat	8	404	214	0.53	52	4144	2244	0.54	110	9724	6782	0.70	8	878	630	0.71	198	15158	9850	0.65
13. Rajasthan	18	1447	479	0.33	28	2241	1000	0.45	166	15712	11144	0.71	26	2137	1645	0.77	238	21537	14268	0.66
14. Hyderabad	...	...	...	...	22	2177	1786	0.82	...	...	...	...	...	...	...	...	2172	1786	0.82	
15. Delhi	...	...	...	...	32	3847	1904	0.49	31	3750	1854	0.49	...	...	...	...	2263	7597	3758	0.49
Total	65	4564	1747	0.38	780	75141	36180	0.48	2070	195372	26959	0.65	1005	99816	75026	0.75	3920	374893	239912	0.64

Report on weaving

26. With a view to assessing the acceptability of Ambar yarn to the handloom weavers in the country, the Board had undertaken to organize the distribution of yarn to them, and collect comparative data on the output of cloth with mill yarn and Ambar yarn by different weavers in different regions of the country and also their opinion on the weaving qualities of Ambar yarn. In pursuance of this two-fold undertaking, the Ambar Charkha Samiti organized the distribution of Ambar yarn spun by the spinner-trainees at the Parishramalayas among local weavers in as many regions as possible. As this work could be undertaken only after the collection of the data on the performance of the spinner-trainees, and as the collection of comparative data on weaving takes considerable time, as it involves weaving of identical pieces of cloth with mill-yarn and Ambar yarn, reports on the weaving experiments in Punjab, Uttar Pradesh, Bengal, Orissa, Madhya Pradesh, Madhya Bharat, Rajasthan, Malabar and Travancore-Cochin have not yet been received. As an analysis of the results of the weaving experiments conducted by the Ambar Charkha Samiti is urgently required, the following paragraphs present a consolidated report based on the limited information received so far.

The coverage

27. The reports on the weaving experiments conducted all over the country relate to 50 weavers in Andhra, Karnatak, Maharashtra, Gujarat, Tamilnad, Bihar and Saurashtra. The available details of the performance of each weaver in each region on Ambar yarn and mill yarn are set out in Statement III. Of the reports on 50 weavers that were received, six from Andhra, two from Karnatak and one from Saurashtra were rejected. While the six reports from Andhra were rendered defective, partly by the misinterpretation of the terms "soaking of yarn" as connoting "the time during which the yarn was soaked" and partly by the arbitrary division of an 18-yard piece of cloth of given specifications into three six-yard pieces for assessing the weaving time, reports from Karnatak and Saurashtra did not furnish comparative data or even weaving data on the Ambar yarn. Consequently, nine of the reports received so far had to be wholly omitted, and the report thus relates to only 82 per cent. of the weavers covered by the experiment.

Classification of weavers and looms

28. Of the 41 weavers for whom analytically acceptable and comparative data are available, 23 or 56 per cent. were weavers who had previous experience of weaving with handspun yarn and the rest (except one of whom information is not available) were mill-yarn weavers and were altogether new to weaving with hand-spun yarn. The classification of spinners into old and new is presented in Table 8.

TABLE 8
Classification of weavers

Region	Old*	New**	Total
1	2	3	4
1. Andhra	4	..	4
2. Karratak	2	2	5†
3. Maharashtra	1	6	7
4. Gujerat	1	..	1
5. Tamilnad	2	1	3
6. Bihar	11	8	19
7. Saurashtra	2	..	2
TOTAL	23	17	41†

*Old : Weavers with experience of weaving with handspun yarn.

**New : Weavers with no such previous experience.

† Inclusive of one weaver, of whom no information is available.

29. Analysis of the weavers by the type of looms used by them shows (Table 9) that of the 41 weavers about 70.7 per cent. had flyshuttle looms and 22 per cent. worked on throw-shuttle looms. Information regarding the type of looms used by the rest is not available. Of the 29 weavers shown as working on the fly-shuttle looms one weaver in Maharashtra worked on a semi-automatic loom. Regionwise analysis of the type of looms shows that except in Bihar, the weavers in all the other regions, which have sent in reports, worked with fly-shuttle looms. Of the 19 weavers in Bihar, only 10 had fly-shuttle looms, and 8 had throw-shuttle looms and no information is available for the other weaver.

TABLE 9
Looms

Region	No. of fly-shuttle looms	No. of throw-shuttle looms	No. of looms not specified	Total No. of looms
1	2	3	4	5
1. Andhra	4	..	..	4
2. Karnatak	3	..	2	5
3. Maharashtra*	7	..	..	7
4. Gujerat	1	..	..	1
5. Tamilnad	3	..	..	3
6. Bihar	10	8	1	19
7. Saurashtra	1	1	..	2
TOTAL	29	9	3	41

*Includes one semi-automatic loom.

Yarn counts and Texture of cloth

30. The comparative productivity data presented below relate to cloth woven from Ambar and mill yarn in the count range of 12's to 24's. The bulk of them was, however, cloth woven from 16's to 20's. The texture of the cloth in all areas, except Saurashtra, which has not supplied the details, was good, ranging from 40 to 48 ends per inch with 42 to 58 picks per inch. Consequently, the productivity analysis presented below may be considered a reliable index of the probable productivity of the average handloom weaver with Ambar yarn.

Comparative Productivity

31. The comparative data on the productivity of weavers with Ambar and mill yarns, set out in Statement III and summarised in Table 10 below, show that the productivity of the weavers weaving the first piece of cloth with Ambar yarn does not compare unfavourably with their productivity with mill yarn. As can be seen from the frequency distribution in Table 10, of the 41 weavers on Ambar yarn for whom data are available, 38 or 93 per cent. had a productivity rate of 6 yards and above per day of 8 hours. Among them, 12 or 29 per cent. had a productivity rate of 8 yards and above per day of 8 hours and 16 had a productivity rate of 12 yards and above per day of 8 hours. Of the 28 weavers on mill yarn for whom comparative data are available, all had a productivity rate of 6 yards and above per day of 8 hours, 14 or 50 per cent. of them having a productivity rate of 8 yards and above, and 11 or 39 per cent. having a productivity rate of 12 yards and above per day of 8 hours.

TABLE 10
Frequency Distribution

	Ambar yarn					Mill yarn				
	Below 6 yds	6 to 7 yds	8 to 11 yds	12 yards & above	Total	Below 6 yds	6 to 7 yds	8 to 11 yds	12 yds. & above	Total
I	2	3	4	5	6	7	8	9	10	11
1. Andhra . . .	..	1	2	1	4	..	..	1	2	3
2. Karnatak . . .	2	2	1	..	5	..	2	2	1	5
3. Maharashtra . . .	..	4	3	..	7	..	1	6	..	7
4. Gujerat . . .	..	..	..	1	1	..	..	..	1	1
5. Tamilnad . . .	..	1	1	1	3	..	..	..	2	2
6. Bihar . . .	1	1	4	13	19	..	..	5	5	10
7. Saurashtra . . .	..	1	1	..	2	..	..	..	..	..
TOTAL . . .	3	10	12	16	41	..	3	14	11	28

Percentage to the
respectives totals

7.3	24.4	29.3	39.0	10.7	50.0	39.3	..
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32. The details set out in Statement III show that for the first piece with Ambar yarn the productivity of weavers with Ambar yarn varies from about 2·4 yards per hour or 19·2 yards per day of 8 hours to 0·3 yards per hour or 2·4 yards per day of 8 hours, as against the variations in their productivity with mill yarn for comparable cloth between 2·5 yards per hour or 20 yards per day of 8 hours and 0·8 yards per hour or 6·4 yards per day of 8 hours. While the difference in the maximum and the minimum productivity rates attained by weavers with Ambar and mill yarn appears large, over the entire number of weavers covered by the report, the difference in the productivity of the average weaver in weaving the first piece of cloth with Ambar yarn is, on an average, 0·25 yards less per hour than the productivity of the average weaver with mill yarn.

33. The comparative study of the productivity figures for the second piece of cloth woven with Ambar yarn (Statement III) shows a sufficiently large improvement in the output per hour over that for the first piece to narrow the difference in the rates of output per hour with Ambar and mill yarn to negligible proportions. In other words, though the data available is limited, they serve to bring out clearly that, with experience of weaving with Ambar yarn, the rate of output per hour is likely to improve and equal that with mill yarn.

34. A fact of some significance to the weaving qualities of Ambar yarn is the uniformly high productivity rate of the weavers on the throw-shuttle looms in Bihar. The excellence of their performance with Ambar yarn on the throw-shuttle looms is seen to advantage when it is remembered that this work was done during the month of *Ramzan* when all of them were fasting. Although their experience with handspun yarn may have contributed to their higher output, the uniformly high productivity of about 12 yards and more per day of 7 out of the 8 weavers on throw-shuttle looms reflects favourably on the quality of the Ambar yarn.

35. In this connection, the experience of the persons in charge of the collection of comparative weaving data is that, as a class, weavers new to the use of handspun yarn take relatively more time both for the earlier and weaving processes. With experience of weaving two and more pieces, their productivity per hour improves sizeably. Even the limited data on the second piece woven with Ambar yarn clearly brings out the progressive improvement in weaving.

Weavers' opinion

36. The written evidence of individual handloom weavers and also handloom weavers who are members of co-operative societies in all the regions covered by the report presented in the paragraphs above is that: (i) the Ambar yarn is good and comparable in most respects with mill yarn now available to them; (ii) the defects in the Ambar yarn supplied to them were capable of easy correction, as the yarn was the output of only spinner-trainees and not of fully qualified spinners; (iii) the output per day and the quality of the output can both be made comparable in every respect with those with mill yarn, given the necessary time for adjustment; and (iv)

they will welcome assured supplies of Ambar yarn provided sale of the output can be assured

Conclusions

37. By and large, productivity of old and new weavers on the fly-shuttle and throw-shuttle looms with Ambar yarn is satisfactory as the majority of them are able to weave 6 yards and more per day even with the first piece of Ambar cloth.

The available data as well as the evidence of persons in charge of the collection of data show that with further experience of weaving with Ambar yarn, their productivity may show substantial increases.

The relatively longer time taken by new weavers in the processes preceding weaving is, according to the evidence of field investigators, due wholly to their inexperience and not to any defect or peculiarity of the Ambar yarn.

Further experience of weaving with Ambar yarn, available data show, may altogether eliminate the small disparity in the present productivity rates between Ambar and Mill yarn.



STATEMENT III COMPARATIVE WEAVING DATA.

Name of weaver	Type of loom*	Class of weaver†	AMBAR YARN					Second Piece					MILL YARN				
			First Piece														
			Texture	Length & Width Yds. In.	Weaving time Hrs. Min.	Rate (Yds. per hr.)	Count	Texture	Length & Width Yds. In.	Weaving time Hrs. Min.	Rate (Yds. per hr.)	Count	Texture	Length & Width Yds. In.	Weaving time Hrs. Min.	Rate (Yds. per hr.)	Count
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Andhra :																	
1. L. Narayan, Yadki	F.S.	Old	20 48 46	15 × 44	17—00	1.5	20	48 48	15 × 44	16—15	1.7	20	48 46	15 × 44	16—30	1.7	
2. Rihingappa, Yedki	F.S.	Old	24 48 58	16 × 44	24—15	0.75	...	...	...	...	...	...	20 48 46	16 × 44	22—30	1.0	
3. Nagappa, Yadki	F.S.	Old	20 44 54	16 × 46	20—30	1.25	...	...	...	...	...	...	20 44 50	16 × 46	19—20	1.5	
4. Ghantappa, Yadki	F.S.	Old	20 46 48	15½ × 45	22—30	1.1	20	46 46	15 × 45	20—00	1.5	...	...	...	...	...
Varanasi :																	
5. R. Kalsad, Hubli	F.S.	New	20 48 44	12½ × 32	12—10	1.00	...	...	...	...	...	...	20 48 47	12½ × 32	8—00	1.5	
6. Smt. Mallamma, Hubli	F.S.	Old	20 48 39	4 × 32	16—05	0.8	...	...	...	...	...	...	20 48 48	14 × 32	11—05	1.3	
7. Sankareppa, Gurilhoor	...	Old	18 45 44	12 × 32	14—00	0.8	...	...	...	...	...	...	21 48 44	12 × 32	12—00	1.0	
8. Thimayya, Anekal	F.S.	New	20 44 41	11 × 46	20—20	0.3	20	44 44	8½ × 46	20—30	0.4	20	44 41	11 × 46	12—00	0.9	
9. Venkatachalaaya, Anekal	N.A.	...	20 44 44	8½ × 46	20—30	0.4	...	...	...	...	...	...	20 44 44	8½ × 46	10—40	0.8	
Madheshwara :																	
10. S. V. Kerur, Mandarji	F.S.	New	16 40 34	8 × 45	12—20	0.7	16	40 36	8 × 45	11—30	0.7	16	46 50	18 × 45	6—00	1.3	
11. V. R. Tambat, Mandarji	F.S.	Old	18 40 34	8 × 45	10—20	0.75	...	...	...	...	...	...	18 46 34	8 × 45	10—35	0.75	
12. S. V. Gaikwad, Nasik	F.S.	New	20 44 46	9 × 48	9—00	1.0	20	44 46	9 × 48	8—30	1.1	20	44 46	9 × 48	8—00	1.1	
13. K. R. Pingte, Nandurji	S.A.	New	16 40 40	11½ × 30	13—30	0.8	16	40 42	11½ × 30	13—00	0.9	16	40 40 11½	30	10—00	1.2	
14. Sankar Potte, Satara	F.S.	New	22 40 42	9 × 49	9—30	1.0	22	42 44	9 × 49	8—30	1.1	22	40 42	9 × 49	8—00	1.1	
15. V. G. Nagpure, Yeole	F.S.	New	20 40 42	9 × 48	9—30	1.0	...	...	...	...	...	...	20 40 46	9 × 48	8—00	1.1	
16. N. G. Korhakar, Sinnar	F.S.	New	22 48 46	8½ × 49	9—30	0.9	...	...	...	...	...	...	22 48 48	8½ × 49	8—30	1.0	

* F.S. — Fly shuttle.
 T.S. — Throw shuttle.
 S.A. — Semi-automatic.
 N.A. — Not available.

† Old—Weaver who has previously woven cloth with handspun yarn.

New—Weaver who has no such experience.

APPENDIX VIII

Notes on inspections made by the Committee





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APPENDIX VIII

NOTES ON INSPECTIONS MADE BY THE COMMITTEE.

On 10th March 1956, the Committee visited the Ahmedabad Textile Industries Research Association in order to see Ambar Charkha experiments that were in the process of being conducted and to hold discussions with the Director and other officers connected with the experiments. An exhibition showing the evolution of the Ambar Charkha from its beginning by Shri Ekambaranathan in the year 1949 to the improvements that have been recently effected by A.T.I.R.A., was also arranged.

2. The discussion was opened by the Chairman with the suggestion that it would be useful for the Committee to visit an actual work centre of '*Parishramalaya*' under the pilot project of the Khadi Board, if one is situated near about Ahmedabad. It was decided that the *Parishramalaya* at Nadiad about 40 miles from Ahmedabad should be visited, the following morning.

3. The Chairman then invited Dr. Vikram Sarabhai, Director of A.T.I.R.A. to give his comments on the experiments and the findings that had so far been forthcoming. Dr. Sarabhai at the outset, struck a note of caution against a possible tendency to extra-polate the results of the experiments, carried out in his laboratory, to the general situation. He explained that their experiments could at best indicate what the Ambar Charkha, as an instrument of production, was capable of. In the background of the fact, however, that the experiments were limited only to five spinners with their Ambar Charkha sets and one weaving loom, over the short period of about a fortnight of actual work, it would be unwise to conclude that the results could be considered as of general applicability *vis-a-vis* large-scale production of yarn on the Ambar Charkha. Differing conditions, the human factor and an element of motivation would necessarily influence the output over a larger field. He informed the Committee that care had been taken to produce conditions in the laboratory as close as possible to conditions in the field. A shed somewhat on the lines of a village-hut had been constructed outside the main building of the Institute, having none of the facilities like air-conditioning etc. that were available in the main Institute.

4. Dr. Sarabhai also gave an account of the manner in which the design of the experiments at his Institute had been framed. He informed the Committee that the experiments had been conducted at the instance of the Government of India and in consultation with the Ambar Samiti of the Sarva Seva Sangh. Referring to the questionnaire that had been issued by the Committee, he stated that it covered much more than what A.T.I.R.A. had set out to do. He admitted that the questions were relevant to the problem, but due to the limited scope of the experiments carried out in his laboratories, they were not in a position to answer all of them.

5. One of the Members asked Dr. Sarabhai whether it would be possible for his Institute to extend the scope of the experiments in a manner which would enable him to include investigations covering all the aspects mentioned in the questionnaire. He was also requested to inform the Committee whether it would be possible for his Institute to continue experimentation, in regard to further improving the Ambar Charkha set, as an instrument of production. Dr. Sarabhai stated that his Institute is certainly capable of taking on both types of investigations; but whether this could be done is a matter for Government to settle with the authorities of A.T.I.R.A.

6. In conclusion, Dr. Sarabhai emphasised the necessity of instituting technological research on the Ambar Charkha, together with investigations on the related problems of training, organisation and economics, on an intensive basis.

7. Shri Shankarlal Banker, a close associate of Mahatma Gandhi and a worker of long standing under the All India Spinners' association, who was invited at the instance of Shri Vasavada, was then requested by the Chairman to give the benefit of his advice to the Committee. Shri Banker said that while he was all for scientific research and technological improvement, he would like to impress upon the Committee that further research and investigation on the Ambar Charkha should not hold up the programme for manufacturing khadi on the Ambar Charkha which had already been proved superior to the traditional charkha. He drew the attention of the Committee to the necessity of keeping the practical requirements of the situation and the objective that has to be achieved well in mind. The objective being, to improve the lot of the villagers, it was imperative that the latter should be given the Ambar Charkha which would enable them to increase their production and decrease the cost of yarn, simultaneously. Technological research should continue; but it should not stand in the way of accepting the Khadi Board's proposal for the subsidized distribution of Ambar Charkhas, on a large scale, to khadi producers in the villages. He also stated that while construction and public works could afford temporary relief, in his view, taking everything into account, decentralised spinning and weaving were best suited to relieve unemployment and underemployment in the rural areas. No time, he said, should be lost in arranging for large scale distribution of Ambar Charkhas to the village folk.

8. The Committee then visited the exhibition and watched the experiments on the Ambar Charkha that were being conducted in the A.T.I.R.A. laboratories.

9 On 11th April, 1956, the Committee visited the following institutions:

- (1) The Khadi Board's *Parishramalaya* at Nadiad.
- (2) The Ambar *Vidyalyaya*, Sabarmati Ashram.
- (3) *Saranjam* Karyalaya of the Sarva Seva Sangh in Sabarmati Ashram.

The Committee saw samples of yarn produced at Nadiad and in the Ambar *Vidyalyaya* inspected some pieces of cloth woven out of this yarn and examined some charts and statements prepared at

the two places, on the work that had been done. The general impression of the Committee was that the data had not been compiled satisfactorily and in fact as a result of this experience, the Committee decided at its meeting in Bombay on 12th April, 1956 that a proforma should be drawn up to suit the Committee's requirements and if necessary, a member of the Committee's staff should be sent personally to tabulate the information in the new proforma, from the preliminary data that might be furnished by the centres.

10. On 12th April 1956, the Committee interviewed Shri Kanitkar and Shri Sathe. Shri Kanitkar handed over a written statement to the Committee and Shri Sathe was also requested to send a statement incorporating his views. The Committee also watched demonstration of Shri Sathe's Ram Charkha. The Committee also saw the demonstration of Charkha known as the Sundar Charkha devised by Shri Parshotamdas.

11. On the afternoon of the 12th April, 1956, the Committee visited the laboratories of the Central Cotton Committee, Matunga, and discussed the Ambar Charkha experiments that had been conducted, with the Director, Dr. Nanjundayya. As a result of the discussion, the following facts emerged:

- (1) that the experiments were designed in consultation with the Textile Commissioner and representatives of the Khadi Board but that no Ambar Charkha expert was associated;
- (2) that the important variables in regard to output were:
 - (a) climatic conditions;
 - (b) the type of cotton used;
 - (c) the condition of the workers;
 - (d) the instrument itself;
- (3) that the worker Shri Gaurhari Das could be considered as a standard worker having almost missionary zeal;
- (4) that change in the count of yarn is not a significant factor for determining output, except when the count is above 40's;
- (5) that for the major portion of the time when the experiments were conducted, only a single spinner was used as a subject. This led some of the members of the Committee to doubt the general applicability of the results achieved at Matunga.

In answer to a question whether the Matunga laboratory could undertake experiments for improving the Ambar Charkha as an instrument of production and whether they could conduct a new series of tests on the new model of the Ambar Charkha, the Director assured the Committee that he would be prepared to conduct the necessary investigations. The Director was requested that at the time of designing the next set of experiments, consultations with the Khadi Board and the Ambar Samiti should be ensured.

12. The Ambar Charkha Committee assembled in Kasturba Seva Mandir, Rajpura (PEPSU) on the 1st May 1956. The Secretary of the Mandir Bibi Amtus Salam, an associate of Mahatma Gandhi, showed the Committee round the various Departments of the Mandir. Dr. Gopichand Bhargava, President of the Punjab Khadi Udyog Sangh and Shri Paramjit Singh, Director of Industries, PEPSU accompanied the Committee on the rounds. In the *Parishramalaya*, the Committee collected some samples of yarn spun by workers who had plied the Ambar Charkhas for a period of two months and over and also collected certain statistics relating to output of workers. The Committee observed that socks were being knitted from Ambar yarn on knitting machines made in Ludhiana. The Director of Industries PEPSU was requested to send a report on the knitability and weavability of Ambar yarn. The Committee also saw the *Karalaya* started recently in the Mandir for the manufacture of Ambar Charkha sets. Some iron parts such as gear wheels etc. were made locally.

13. During the course of discussions held, the following points emerged:

(i) that the Ambar Charkha had been well received by the workers and they were keen to have the particular set which each of them had plied for a certain length of time. Bibi Amtus Salam explained that the workers were even ready to acquire the set for full price (about Rs. 100-130) on deferred payment basis—payment to be made in kind not in cash. In other words, the workers would pay purchase price of the sets in instalments in the shape of hanks of yarn per day. It was felt that it was a welcome sign that the workers had realised the desirability of standing on their own legs. Having regard to psychological considerations, a worker is likely to make better use of a tool for which he has paid full price either in cash or in labour than of a tool which has been supplied to him either free of charge or on subsidized basis. Bibiji was requested to reduce her proposition to writing for the consideration of the Committee and Government.

(ii) that the villagers had realised that the Ambar Charkha was a tool which, if widely used, would enable villagers to attain self-sufficiency in cloth and solve the problem of unemployment and under-employment to an appreciable extent. The village Panchayats were prepared to use their authority and influence to ensure that local needs of cloth were met by local production and that the entry of any other cloth was banned.

The Social Welfare Officer, PEPSU informed the Committee that adequate provision had been made for the introduction of Ambar Charkhas in the schemes drawn up by the State.

14. On the afternoon, the Committee visited the *Parishramalaya* in Ambala. The *Parishramalaya* had been started recently and no worker had worked for a period of two months or over. The Committee collected certain statistics relating to the output of the workers.

15. On 2nd May 1956, the Committee visited Adampur, the headquarters of the Punjab Khadi Udyog Sangh. The Committee were shown round the various departments by Dr. Gopichand Bhargava and Shri Hariram Chopra, President and Secretary of the Sangh respectively. There was no *Parishramalaya* in Adampur. There is a *Karalaya* for the manufacture of Charkha sets and it was reported that 2,500 traditional charkhas were being manufactured per month. Manufacture of Ambar Charkhas had also been taken up.

16. The Committee then visited the *Parishramalaya* in Nur Mahal at a distance of about 30 miles from Adampur. The Committee collected certain samples of the yarn spun by workers who had worked for a period of two months and over, and certain statistical data regarding output. A deputation of the local Panchayat saw the Committee and urged that the *Parishramalaya* should be continued in Nur Mahal as the role of the Ambar Charkha in the economy of the village had been fully realised. An instance was cited to the effect that a widow mother died leaving three daughters unprovided for. The daughters took to spinning on the ordinary charkha, acquired high proficiency and earned sufficient to maintain themselves and to defray the expenses on the marriage of two of them. One of the ladies in the village had placed premises at the disposal of the village free of rent for running a *Parishramalaya*. Shri Purshottam Kanji gave a suitable reply on behalf of the Committee.

17. In the afternoon, the Committee visited the *Parishramalaya* in Bilga, at a distance of about five miles from Nur Mahal. The Committee saw the *Parishramalaya* and collected certain samples of yarn and statistics relating to the output of workers. A deputation of the Congress workers and the local Panchayat saw the Committee and explained that the village of Bilga had played a prominent role in the freedom movement and during the short period the *Parishramalaya* had been in existence, the villagers realised the potentialities of the Ambar Charkha. The deputationists, therefore, urged that the Committee should sanction the continuance of the Ambar programme. Once again Shri Purshottam Kanji gave a reply in suitable terms on behalf of the Committee.

Fourth Session of the Ambar Charkha Committee in South India on 7th May 1956 and 8th May 1956

Tirupur (Madras State).

18. The Committee visited the Ambar Charkha *Vidyalaya* at Veerpandi and also the following *Parishramalayas*:—

- (i) Veerpandi *Parishramalaya*;
- (ii) Velampalayam *Parishramalaya*;
- (iii) Rattai Kainar *Parishramalaya*;
- (iv) Kashilingam Palayam *Parishramalaya*.

The main details of information gathered by the Committee at the

above institutions are given below:

I. *Vidyalaya at Veerpandi*

(a) number of trainees	65
(b) age group	between 16 and 47
(c) men	all
(d) Women	nil
(e) trainees from weavers' families	4

In this *Vidyalaya*, the *Dhunai Modia* was not used. Cotton was opened with the traditional bow. One of the facts which the Committee particularly noticed was that many children under the age of 10 were working on the opening of cotton. The undesirability of this was brought to the notice of the authorities of the *Vidyalaya*.

Another interesting point which was observed by the Committee was that one of the trainees operated two Ambar Charkhas simultaneously. Statistics regarding production etc. by plying two charkhas at the same time were, however, not available; since no separate record was maintained for training in the Ambar Charkha which was only one of the many subjects in the *Vidyalaya*.

II. *Veerpandi Parishramalaya.*

(a) number of trainees	28
(b) age group	15 to 30
(c) number from weavers' families	2
(d) men	nil
(e) women	all

One interesting feature of the *Parishramalaya* at Veerpandi was its weaving section. The weavers, one a traditional handloom weaver and the other, a traditional khadi weaver, were engaged in the weaving of cloth with Ambar yarn.

First weaver: (traditional handloom weaver)—had been working with ambar yarn for the last 2 months, and had had previous experience of two or three years of weaving with mill yarn. As against an out-put (weaving only) of 2 yards per hour with mill yarn, this weaver was able to produce only 1½ yards of cloth per hour with Ambar yarn. According to him, the reason for reduced output was due to more knots and therefore more breakages in Ambar yarn. He also reported that for warping, sizing and drawing, both mill yarn and Ambar yarn required the same amount of time.

Second weaver: (traditional khadi weaver). He had four years experience in weaving cloth out of traditional khadi yarn and had been working for about two months on weaving with Ambar yarn. As against an out-put of one yard per hour with traditional khadi yarn, he was able to do two yards per hour with Ambar yarn; but for an 8-hour day his average output was 12 yards. According to him, Ambar yarn was much more uniform and superior in every way to traditional khadi yarn.

III. *Velampalayam Parishramalaya.*

(a) Number of trainees	36
(b) age group	10 to 47
(c) men	nil
(d) women	all
(e) number from weavers' families	nil
(f) old spinners	20
(g) new spinners	16

IV. *Parishramalaya at Rattai Kainar.*

(a) Number of trainees	14
(b) age group	13 to 35
(c) men	nil
(d) women	14
(e) number from weavers' families	nil
(f) old spinners	nil
(g) new spinners	nil

V. *Parishramalaya at Kashilingam Palyam.*

(a) Number of trainees	20
(b) age group	14 to 40
(c) men	6
(d) women	14
(e) number from weavers' families	nil
(f) old spinners	all
(g) new spinners	nil

Samples of yarn and production charts, written in the local languages were obtained from each of these *Parishramalayas*. According to a decision reached later in Puttur, the samples of yarn, together with samples of cloth procured at Narayanavanam in Puttur were handed over with a covering letter, to Shri S. R. Kaiwar, Director of Industries, Andhra, for being tested at the Madras Textile Institute, within a week.

19. *Puttur—(Andhra State).**Parishramalaya at Narayanavanam.*

(a) number of trainees	35
(b) age group	15 to 35
(c) men	4
(d) women	31
(e) number from weavers' families	25
(f) old spinners	nil
(g) new spinners	10

The village of Narayanavanam is pre-dominantly populated with handloom weavers. In Narayanavanam proper and within a radius of about 5 miles, the main occupation is handloom weaving. The number of weavers' families in Narayanavanam is 2,220, 602 of which have joined the co-operative fold. All these co-operative societies are affiliated to the Andhra State Weavers' Co-operative Society. The State Apex Society supplies yarn as an advance but free of cost, to the weavers. The cloth produced by the weavers is collected by the Society which undertakes its marketing. The State Weavers' Society has 150 sales depots attached to it. Most of these are within the State but a few are located outside the State in other important capitals. The weaver only gets his wages from Society. Wages are as follows:

- (i) for 20's As. -/4/6 per knot of 10 hanks.
- (ii) for 40's As. -/7/- per knot.
- (iii) for 60's As. -/6/8 per knot.

The State Society gets yarn direct from the mills for distribution to the handloom weavers: The rate of yarn is as follows:—

- | | | | | | |
|----------------|---|---|---|---|--------------------------------|
| (i) for 20's | . | . | . | . | Rs. 18/- per unit of 10 lbs. |
| (ii) for 40's | . | . | . | . | Rs. 26/8/- per unit of 10 lbs. |
| (iii) for 60's | . | . | . | . | Rs. 46/8/- per unit of 10 lbs. |

Only three families have so far taken to weaving with Ambar yarn and this also at the specific request of the Ambar Khadi centre in Narayanavanam. The Khadi centre has been able to draw away these three families, by the promise of slightly higher wages than they are paid, for weaving with mill yarn.

The above information was given to the Secretary of the Committee by the Deputy Registrar of Co-operatives, Puttur.

Out of the three handloom weavers who have agreed to weave with ambar yarn, the Committee visited two, for taking evidence.

First weaver:

According to his statement, he could weave the same yardage of cloth with Ambar yarn in 2 hours while he took only 1½ hours in the case of mill yarn. The reason for reduced output was more knots, more unevenness and more breakage.

Second weaver:

This weaver complained that due to more slubs and more breakages, his out-put in a given unit of time, with Ambar yarn, was three-fourths of the quantity which he could weave with mill yarn. This weaver also informed the Committee that he had taken to weaving with Ambar yarn because the local *Parishramalaya* had promised to give him an additional wage of Rs. 2-0-0 for every 24 yards of cloth woven.

APPENDIX IX

Results of weaving tests on yarn produced in the *Parishramalayas* under the Board's Pilot Project Scheme. These tests were conducted on the directive of the Committee.





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APPENDIX IX

**RESULTS OF WEAVING TESTS ON YARN PRODUCED IN THE
PARISHRAMALAYAS UNDER THE BOARD'S PILOT PROJECT
SCHEME. THESE TESTS WERE CONDUCTED ON THE DIREC-
TIVE OF THE COMMITTEE**

I

SHRI S. R. VASAVADA'S REPORT ON WEAVING TESTS ON AMBAR YARN

Handloom . . .	Count 20's	Width 45"	Length 12 yards First piece	Ends per inch 45 Second piece
Warp hanks	33	33
Weft hanks	36	34
Time-warp preparing	5 hours	5 hours
Piecing time	5 hours	4 hours
Beaming time	1 hour	1/2 hour
Weaving time	13 hours	10 hours
Average production per hour.	1 yard	1½ yards
Ends breakages	40	28
Ends per inch (Pick)	48	45

II

**REPORT OF THE PRINCIPAL GOVERNMENT TEXTILE INSTITUTE, MADRAS
ON THE TESTS CARRIED OUT ON AMBAR YARN AND CLOTH**

The tabulated statement of test reports for four samples of Ambar Charkha yarn and two samples of Ambar Charkha cloth are given below:

Yarn Samples

Name of the place and Centre	Lea-Breaking strength for six tests	Counts for six tests	Remarks
1	2	3	4
Narayanavaram under Puttur Centre.	1. 31 lbs.	23.58	
	2. 32 lbs.	19.758	
	3. 34 lbs.	18.258	
	4. 50 lbs.	18.758	
	5. 49 lbs.	18.258	
	6. 42 lbs.	20.008	
	238 lbs.	118.50	
	6	6	
	39.6 lbs.	19.75	
Veerapandi under Tirupur Centre.	1. 27 lbs.	20.58	
	2. 50 lbs.	17.58	
	3. 36 lbs.	19.08	
	4. 45 lbs.	18.08	
	5. 43 lbs.	18.758	
	6. 40 lbs.	18.258	
	241	112.00	
	6	6	
	40.16 lbs.	18.868	
Kasilingham Palingam under Tirupur Centre.	1. 34 lbs.	20.58	
	2. 35 lbs.	22.008	
	3. 42 lbs.	19.58	
	4. 36 lbs.	21.58	
	5. 34 lbs.	21.758	
	6. 59 lbs.	18.008	
	240	123.25	
	6	6	
	40 lbs.	20.548	
Velampalayam under Tirupur Centre.	1. 62 lbs.	18.758	
	2. 55 lbs.	18.258	
	3. 54 lbs.	17.258	
	4. 51 lbs.	17.258	
	5. 22 lbs.	26.008	
	6. 21 lbs.	28.508	
	265	126.00	
	6	6	
	42.5 lbs.	218.	

General remarks.

The yarn is not even in thickness and the turns per inch is not uniform. Hence the difference in count and turns per inch and strength noticed.

Cloth Samples

<i>Un-bleached</i>	<i>Bleached</i>
1. Length 3 yds.	3 yds.
2. Width $44\frac{1}{2}"$ to $44\frac{1}{2}"$	$40"$ to $40\frac{1}{2}"$
3. Ends per inch 50	54
4. Picks per inch 44 to 46	46 to 50
5. Plain Weave (Structure)	Plain weave (Structure)

Breaking strength in warp and weft way

(Strips taken $7" \times 6 \frac{5}{8}"$)

Warp way	Elongation	Weft Way	Elongation
1. 115 lbs.	$1\frac{1}{8}"$	80 lbs.	1 $\frac{5}{8}"$ (Un-bleached)
2. 80 lbs.	"	75 lbs.	" "
3. 100 lbs.	"	80 lbs.	" "
4. 100 lbs.	"	85 lbs.	" "
5. 90 lbs.	"	95 lbs.	" "
6. 85 lbs.	"	80 lbs.	" "
<u>570</u>		<u>495</u>	
$\frac{6}{95 \text{ lbs.}}$		$\frac{6}{82.5 \text{ lbs.}}$	
1. 50 lbs.	$1\frac{1}{8}"$	50 lbs.	$1\frac{1}{8}"$ (Bleached)
2. 45 lbs.	"	45 lbs.	" "
3. 45 lbs.	"	45 lbs.	" "
4. 45 lbs.	"	45 lbs.	" "
5. 45 lbs.	"	45 lbs.	" "
6. 70 lbs.	"	55 lbs.	" "
<u>255</u>		<u>240</u>	
$\frac{6}{42.5 \text{ lbs.}}$		$\frac{6}{40 \text{ lbs.}}$	

17th May, 1956

(Sd) VAIDYANATHAN,
Principal.

III

DIRECTOR OF INDUSTRIES P.E.P.S.U.

*Test report of Ambar Yarn and Ambar Khadi prepared at the
Kasturba Sewa Mandir, Rajpura.*

*Ambar Yarn**Count Yarn*

Sample No. 1 . . .	11s.
No. 2 . . .	15½s.
No. 3 . . .	9½s.
No. 4 . . .	15s.
No. 5 . . .	22·3s.
No. 6 . . .	16·8s.

*Ambar Khadi.**Cloth.*

Breaking strength . . .	4" width.
Sample I . . .	33·3 lbs.
Sample II . . .	24·3 lbs.

Count of cloth.

Sample No. 1 . . .	8·5 W.P.
	13·2 W.F.
Sample No. 2 . . .	10·5 W.P.
	9 W.F.

A note on the weavability and knitability with Ambar Charkha Yarn

In compliance with the directive of Khera Committee on its visit to Kasturba Sewa Mandir at Rajpura on 1st May, 1956, I was verbally ordered by the Director of Industries, Patiala to assess the weavability and knitability of Ambar Charkha yarn on fly-shuttle loom and hand-knitting machines at par with Mill spun yarn basis.

Accordingly I returned to Rajpura on 2nd May, 1956 and have since been attending to this work, which finished on 6th May 1956 night. There was lot of difficulty in persuading weavers to help in carrying out this interesting experiment. The traditional weaver is a no changer and besides this was just wrong season to expect him to come to us just for our experiment for 2 or 3 days leaving his hearth and home without good reason. Besides since there is no weaving workshop in this organisation and every bit of item had to be loaned from Government work centre which is at a distance. This also caused a good bit of obstruction in performance of this duty. Ultimately the authorities of Kasturba Sewa Mandir arranged two weavers of their own organisation who could work on hand spun yarn on Fly shuttle Handlooms. Since there was no hereditary weaver at hand to weave mill made yarn on fly shuttle handloom an ex-trainee of work Centre was put on the job.

In the case of Ambar Charkha yarn, two different experiments were carried out. In one case all the preparatory processes were done on the traditional primitive method, i.e. stretched warp system in the open, like-wise sizing and piecing the warp with the usual cotton thread healds, and use of kana reed, but the actual weaving was done on fly shuttle loom. This process stood the strain and it was possible to weave the normal quality of cloth.

In the second experiment, all the processes adopted were those normally followed by a fly shuttle handloom weaver i.e., sizing on Hanks warping on usual drum warping machines etc.

This of course, did not succeed, and breakage of warp threads was extensive.

The fact of the matter is that the Ambar Charkha Yarn supplied for the purpose was the work of trainees and not of trained spinner workers. This could not be supplied, because those who are trained spinners are busy training a large number of fresh candidates and cannot be put under production of spinning yarn.

Thus the weavability experiment as carried on here was made under three handicaps.

- (i) trainees defective yarn.
- (ii) without proper workshop facilities.
- (iii) mis-fit labour.

Accordingly it is suggested that the experiment may be repeated in a set up weaving workshop by pre-arrangement of the service of expert skilled labour for the purpose with the best possible yarn of Ambar Charkha spun by skilled workers, when a proper data could be again worked out.

Knitability

In this case too, yarn failed in the first instance. Later a skilled spinner was exclusively put on spinning good yarn for the purpose and this succeeded very well, which shows that Ambar Charkha yarn has better potentiality properly spun by Expert spinners.

EXPERIMENT No. 1

Ambar Charkha Yarn test weaving on fly shuttle loom with primitive and preparatory processes.

S. No.	Name of Process or Specifications	Particulars	Remarks
1	2	3	4
1. Sizing	} 7 Hours.	2 hours 40 mts.	Note I.
2. Winding warp			Wife of the weaver worked with him jointly.
3. Warping			
4. Drawing and Beaming			When he commenced weaving she supplied the ready made pins.
5. Fitting up warp on loom	One Hour		
6. Length of warp	16 yds.		Note II.
7. Width of warp cloth	30"		One yd. piece of cloth produced is enclosed.
8. Count of warp Yarn	14 S		
9. Count of weft yarn	14 S		
10. Reeds or no. of ends per inch.	42		
11. Average No. of picks	41/42.		
12. Production per 8 hours	10 yds.		

Experiment No. 1—(contd.)

1	2	3	4
13. Wages earned for Fabrication.	Rs. 1/9/- at -12/6 per yd.		
14. Quality of cloth	Satisfactory.		
15. If bad selvedge give reasons	No problem.		
16. If defective cloth whether due to uneven or faulty yarn, uneven packing, faulty workmanship breakage of warp threads or any other fault.	No comment.		
17. Misc. information	In all weaving processes took 13½ hours to finish the warp and cloth produced was 15½ yds.		

EXPERIMENT No. 2

Ambar Charkha Yarn test weaving on fly shuttle loom with usual preparatory processes

S. No.	Name of process or specification	Particulars	Remarks
1. Sizing		4 hours	Weaver was assisted by another weaver who co-jointly worked with him except in weaving.
2. Winding warp		At an average of 2½ hrs. (300 yds. per hour.)	He supplied him ready made pirns while the master weaver was weaving.
3. Warping		1½ hours.	
4. Drawing and Beaming		7 hours.	
5. Fitting up warp on loom		2 hours.	
6. Length of warp		20 yds. (issued 5 lbs. of yarn.)	One yard cloth is enclosed.
7. Width of warp cloth		30"	
8. Count of Warp yarn		14s.	
9. Count of weft yarn		14s.	
10. Reeds or No. of ends per inch.		40s Reed and about 40 ends in cloth per inch.	
11. Average No. of picks per inch		32/34	
12. Production per 8 hrs.		2½ yds.	
13. Wages earned for Fabrication		Nil value.	
14. Quality of cloth		Poor.	
15. If bad selvedge give reason			
16. If defective cloth whether due to uneven or faulty yarn, uneven packing, faulty workmanship breakage of warp threads or any other fault.		Extensive breakage of threads.	
17. Misc. information.			

EXPERIMENT NO. 3

Mill spun yarn weaving on fly shuttle loom with usual preparatory Processes.

S. No.	Name of Process or specification	Particulars	Remarks
1.	Sizing	Preparing the warp for sizing 1½ hours. Sizing process 1 hour	Weaver was assisted by another helper worker for all processes except weaving. The helper supplied to him the ready made weft pirns for weaving.
2.	Winding warp	5 hanks per hour	
3.	Warping	1-3/4 hours.	
4.	Drawing and Beaming	7 hours.	
5.	Fitting up warp on loom	One hour.	
6.	Length of warp	20 yds.	
7.	Width of warp cloth	30"	
8.	Count of warp yarn	14s.	
9.	Count of weft yarn	14s.	
10.	Reeds or No. of ends per inch.	40s.	
11.	Average No. of picks per inch.	36/38	One yard of cloth is sent herewith.
12.	Production per 8 hours	14 yds (About)	
13.	Wages earned for fabrication	Rs. 2/3/- at -2/6 per yd.	
14.	Quality of cloth	Satisfactory.	
15.	If bad selvedge give reason	No problem.	
16.	If defective cloth whether due to uneven or faulty yarn, uneven packing, faulty workmanship breakage of warp threads or any other fault.	No comments.	
17.	Misc. information	I. The worker was not a hereditary professional weaver but an Ex-trainee of work centre. II. In all weaving process took 12 hours to finish the work and cloth produced was 19½ yds.	

IV

REPORT OF THE JOINT DIRECTOR OF INDUSTRIES (COMMERCE) DIRECTORATE OF INDUSTRIES, U.P., KANPUR ON THE CLOTH WOVEN OUT OF AMBAR YARN SUPPLIED BY THE MINISTRY OF PRODUCTION, GOVERNMENT OF INDIA, NEW DELHI.

Ninety yards of cloth weighing 22 lbs. 7 oz. was got woven by 4 weavers of Etawah. The average weight per yd. comes to 4 oz. The wastage of 3 lbs. 2 oz. of yarn as claimed by the weavers was allowed. The necessary information regarding manufacturing particulars, specifications, wastage in soaking, winding, weaving and bleaching are shown in the enclosed statements.

I visited Etawah along with the Principal, Government Central Textile Institute, Kanpur. We talked with the weavers and the technical staff and our observations are as under:—

- (i) the weavers have mentioned in their statements that high twist of yarn and unevenness caused difficulties in winding, warping, sizing and weaving and there were many breakages. If these defects are removed the yarn would behave better;
- (ii) the yarn is more adaptable to warp sizing than hank sizing. There were also difficulties because of mid summer season and they thought that it would fare better in winter and rainy seasons;
- (iii) two of the weavers who were not at all accustomed to hand-spun yarn and warp sizing felt greater difficulties;
- (iv) Since the hanks of the yarn were of the size of hand-spun yarn, the weavers could easily recognize it as hand-spun yarn and, therefore, they somewhat exaggerated the difficulties. They also found it more uneven than mill yarn. On account of breakages and unevenness the output of cloth was less than in the case of mill yarn.

(Sd.) J. N. SINGH,
Principal,
Government Central Textile
Institute, Kanpur.

(Sd.) L. C. GUPTA,
Jt. Director of Industries,
(Commerce), U.P., Kanpur.

Statement showing receipt and consumption of yarn

Sl. No.	Particulars	Counts	Quantity	Total	Remarks
1.	Total yarn received.	24's 20's	19 lbs. 13 lbs. 12 oz.	} 32 lbs. 12 oz.	
2.	Wastage of yarn in soaking.			1 lb. 3 oz.	Average of wastage in soaking $\frac{1}{4}$ oz. per lb.
3.	Total net weight of yarn after soaking	24's 20's	18 lbs. 7 oz. 13 lbs. 2 oz.	} 31 lbs. 9 oz.	
4.	Yarn consumed in manufacturing.	24's 20's	9 lbs. 8 oz. 11 lbs.	} 20 lbs. 8 oz.	
5.	Wastage allowed	24's 20's	1 lb. 2 oz. 13 oz.	} 1 lb. 15 oz.	
6.	Yarn in hand	24's 20's	7 lbs. 10 oz. 1 lb. 8 oz.	} 9 lbs. 2 oz.	

Statement showing manufacturing particulars

Sl. No.	Particulars	Count of yarn used in warp.	Count of yarn used in weft.	Ends per inch in grey.	Ends per inch after bleaching	Picks per inch in grey	Picks per inch after bleaching	Remarks.
1	2	3	4	5	6	7	8	9
1.	Dhoti 5 x 45"	20's	20's	42 ends per inch	46 ends per inch.	42 picks per inch.	46 picks per inch.	
2.	Table cloth 45" x 45"	24's	24's	42 ends per inch.	44 ends per inch.	44 picks per inch.	45 picks per inch.	
3.	Long cloth 30"	24's	20's	56 ends per inch.	60 ends per inch.	64 picks per inch.	68 picks per inch.	
4.	Twill 30"	24's	20's	56 ends per inch.	60 ends per inch.	42 picks per inch.	44 picks per inch.	
5.	Bijali, ahirsting 30"	24's	24's	52 ends per inch.	56 ends per inch.	52 picks per inch.	56 picks per inch.	
6.	Sheeting cloth 30"	24's	20's	54 ends per inch.	56 ends per inch.	56 picks per inch.	60 picks per inch.	
7.	Long cloth 36"	20's	20's	54 ends per inch.	58 ends per inch.	50 picks per inch.	52 picks per inch.	
8.	Garacha 30"	24's	24's	54 ends per inch.	56 ends per inch.	50 picks per inch.	52 picks per inch.	

V

**TECHNOLOGICAL LABORATORY
INDIAN CENTRAL COTTON COMMITTEE.**

YARN TEST REPORT No. 1617

Samples of Ambar charkha yarns submitted by the Secretary, Ambar Charkha Committee, New Delhi.

Laboratory Sample No.		Particulars of sample.					
Y-3280	Ambar Charkha	Yarn No. 1	from Nur Mahal Parishramalaya (Punjab).				
Y-3281	„ „	„ No. 2	from the Bilga Parishramalaya (Punjab).				
Y-3282	„ „	„ No. 3	from Rajpura Parishramalaya (Pepsu).				
Y-3283	„ „	„ No. 4	from the Narayanavanam, Puttur (Andhra State).				
Y-3284	„ „	„ No. 5	from Veerpandi Parishramalaya, Tirupur (Madras State).				
Y-3285	„ „	„ No. 6	from Kashilingam Palayam Parishramalaya in (Madras State).				

Laboratory Sample No.	Y-3280	Y-3281	Y-3282	Y-3283	Y-3284	Y-3285
Lea Test Results :—						
Counts of yarn	16.4	15.7	15.6	19.1	17.7	19.0
Co-efficient of variation of count (%)	12.5	9.5	18.4	16.5	14.4	9.2
Strength of Yarn in Lbs.	55.3	52.4	42.2	49.7	46.5	41.0
Count strength product	907	823	658	949	823	779

Tests were carried out at about 65% R. H. and 84°F Temperature.

(Sd.) ILLEGIBLE,
for Director,
Technological Laboratory.

Matunga, Bombay-19, the 25th May, 1956.



APPENDIX X

Statistical data collected by the Committee's Secretariat in respect of the performance of 84 Parishramalys under the Khadi Board's Pilot Project Scheme.

APPENDIX X

STATISTICAL DATA COLLECTED BY THE COMMITTEE'S SECRETARIAT IN RESPECT OF THE PERFORMANCE OF 84 PARISHRAMALAYAS UNDER THE BOARD'S PILOT PROJECT SCHEME.

Name of Parishramalaya—Metapalli, Dt. Karimnagar,
(Hyderabad)

Date of starting 7th Jan. 1955
Number of Charkha sets 5

S. No.	Name of Operative	Class of Spinner	No. of days of attendance	Average count	From 28th March 56 to 13th April 1956.					
					Duration of Work (Hours)				Loss Tolas	
					Car- ding	Spg.	Total	Prodn. Count hanks		
		Age Sex								
1	Kabikola Chinnamma	20 F	39	7	53	53	106	135	14	259
2	Jogabhu Laxmidevi	13 F	36	5	53	53	106	89	8	174
3	Anasuyadevi	16 F	28	5	39	39	78	53	10	136
4	Prabhavathy devi	12 F	39	4	53	53	106	61	8	141
5	Mukhiresa Ramabhai	25 F	39	5	53	53	106	93	12	173
6	Besta Rajubhai	30 F	39	5	53	53	106	103	12	186
7	Kotnu Rajamma	25 F	37	4	46	46	92	67	11	133
8	Premiladevi	12 F	39	3	53	53	106	49	10	103
9	Kondursu	30 F	34	4	46	46	92	67	10	118
10	Govardan Laxmi Raja	45 F	35	3	53	53	106	79	10	119
11	Gundannaru	55 F	36	3	46	46	92	40	10	89
12	Anjamma	25 F	31	3	46	46	92	50	10	92
13	Katte Rajamma	50 F	38	3	49	49	98	68	11	118
14	Darnapuri Rajeswari	20 F	34	3	49	49	98	64	9	113
15	Katekula Chinniah	12 M	37	5	49	49	98	111	13	190
16	Pakrudin	16 M	39	5	53	53	106	116	10	209
17	Sheik Inam	10 M	39	5	53	53	106	93	13	192
18	Ramahpelli Rumaaya	20 M	39	5	53	53	106	115	10	193
19	C. H. Hanumanulu	18 M	33	5	42	42	84	100	12	159
20	Kodur Iswarayya	23 M	28	5	53	53	106	102	10	134
21	Kachrala Maheswa	21 M	34	5	53	53	106	95	10	151
22	Abdul Karim	25 M	27	6	49	49	98	110	10	150
Total				..	..	..	2,194	1,850	..	..

Name of Parishramalaya : Narela (Delhi State).

Serial No.	Name of operative	Class of Spinner	No. of days of Trg.	From 10th March 1956 to 27th March 1956				From 28th March 1956 to 13th April 1956				Duration of work (Hours)				Duration of work (Hours)				
				Duration of work (Hours)				Duration of work (Hours)				Duration of work (Hours)				Duration of work (Hours)				
				Card- ing	Spg.	Total Prodn. hanks	Count	Loss Tolas	Card- ing	Spg.	Total Prodn. hanks	Count	Loss Tolas	Card- ing	Spg.	Total Prodn. hanks	Count	Loss Tolas		
1		3	4	5	6	7	8	9	10	11	12	13	14	15	16					
1	Arijun Singh .	.	51	50	75	125	42	12	12	50	65	115	84	12	22					
2	Dudhnath .	.	"	47	57	104	47	14	15	68	68	136	85	14	22					
3	Maha Singh .	.	"	47	47	94	47	14	15	63	83	146	59	14	15					
4	Balvir Singh .	.	"	60	60	120	66	12	20	55	65	120	91	12	30					
5	Bhirsingh | .	.	"	54	66	120	20	12	13	62	58	120	50	12	20					
6	Balvir Singh .	.	"	60	60	120	26	12	12	68	52	120	56	12	22					
7	Dalipsingh .	.	"	77	43	120	43	12	12	52	68	120	59	12	22					
8	Parnarsingh .	.	"	75	45	120	45	12	12	61	59	120	58	12	22					
9	Randhirsingh .	.	"	52	68	120	39	12	12	68	52	120	59	12	22					
10	Gangaprasad ¹ .	.	"	53	67	120	48	12	12	61	59	120	96	12	25					
11	Hariprakash .	.	"	58	62	120	31 ¹	12	12	60	60	120	58	12	22					
12	Bhagchandra .	.	"	59	61	120	38	12	12	63	57	120	53	12	22					
13	Rameshchandra .	.	"	57	63	120	37	12	12	59	61	120	72	12	33					
14	Vahasingh .	.	"	56	64	120	66	12	20	60	60	120	90	12	33					
15	Abhayasingh .	.	"	55	65	120	37	12	12	59	61	120	17	12	5					
16	Rajendrabhai .	.	"	62	58	120	40	12	12	52	68	120	59	12	22					
17	Laxminarayan ¹ .	.	"	64	56	120	19	12	10	65	55	120	30	12	10					
18	Hemchandra .	.	"	56	64	120	42	12	10	53	67	120	67	12	20					

19	Mangoram	.	.	.	.	.	.	51	28	28	56	16	12	10	59	61	120	27	11	10
20	Gangadevi	.	.	.	.	.	.	"	52	68	120	32	12	12	57	63	120	48	12	20
21	Ramratidevi	.	.	.	.	.	.	"	54	66	120	33	12	13	54	66	120	58	12	20
22	Rajkumari	.	.	.	.	.	.	"	59	61	120	42	12	12	57	63	120	70	12	20
23	Sharda	.	.	.	.	.	.	"	61	59	120	44	12	12	61	59	120	71	12	20
24	Indraben	.	.	.	.	.	.	"	62	58	120	37	12	12	68	52	120	23	12	10
25	Premshankar Shastri	.	.	.	.	.	.	"	69	51	120	33	12	12	65	55	120	55	12	15
26	Sardar Bhai	.	.	.	.	.	.	"	67	53	120	32	12	12	60	60	120	60	12	15
27	Ramakant	.	.	.	.	.	.	"	66	54	120	24	12	12	57	63	120	58	12	13
28	Ranvirbhai	.	.	.	.	.	.	"	65	55	120	20	12	11	63	57	120	35	12	13
29	Gangavantbhai	.	.	.	.	.	.	"	62	58	120	37	12	12	65	55	120	70	12	15
30	Shivnarayan	.	.	.	.	.	.	"	63	57	120	63	12	20	59	61	120	98	12	30
31	Richpalbhai	.	.	.	.	.	.	"	61	59	120	40	12	12	59	61	120	59	12	12
32	Kapilbhai	.	.	.	.	.	.	"	60	60	120	35	12	13	56	64	120	37	12	12
33	Ramphalbhai	.	.	.	.	.	.	"	62	58	120	23	12	10	62	68	120	31	12	10
34	Kilade	.	.	.	.	.	.	"	63	57	120	34	12	10	65	55	120	46	12	12
35	Ramahwarupbhai	.	.	.	.	.	.	"	60	60	120	10	12	4	63	57	120	37	12	14
36	Rajandranath	.	.	.	.	.	.	"	63	57	120	47	12	15	58	62	120	62	12	15
37	Vaidichandra	.	.	.	.	.	.	"	61	59	120	24	12	10	62	58	120	46	12	18
38	Harpalbhai	.	.	.	.	.	.	"	62	58	120	34	12	10	60	60	120	76	12	19
39	Ramdhambhai	.	.	.	.	.	.	"	59	61	120	61	12	20	60	60	120	76	12	19
40	BhimSingh	.	.	.	.	.	.	"	62	58	120	34	12	10	60	60	120	62	12	22
41	Ramkrishan	.	.	.	.	.	.	"	63	57	120	36	12	12	61	59	120	51	12	22
42	Sumanprasad Jain	.	.	.	.	.	.	"	64	56	120	45	12	14	60	60	120	67	12	23
43	Rajendraprasad	.	.	.	.	.	.	"	65	55	120	11	12	3	62	58	120	30	12	10
44	Udamiram	.	.	.	.	.	.	"	68	52	120	45	12	13	60	60	120	63	12	16
45	Roshanlal	.	.	.	.	.	.	"	63	57	120	36	12	12	62	58	120	56	12	14
46	Rupnarayanbhai	.	.	.	.	.	.	"	68	52	120	19	12	10	59	51	120	32	12	15
47	Maheendrambhai	.	.	.	.	.	.	"	67	53	120	36	12	12	60	60	120	63	12	12

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
48	Dinanathbhai	.	.	.	62	58	120	36	12	62	58	120	53	12	13
49	Madanasinghbhai	.	.	.	63	57	120	36	12	62	58	120	53	12	14
50	Balvantsingh	.	.	.	65	55	120	29	12	63	57	120	52	12	15
51	Vannaribhai	.	.	.	66	54	120	27	12	65	55	120	49	12	16
52	Banarashibhai	.	.	.	57	63	120	15	12	67	53	120	45	12	17
53	Tekchand	.	.	.	53	67	120	15	12	67	53	120	48	12	12
54	Hariharimbhai	.	.	.	63	57	120	32	12	60	60	120	62	12	13
55	Maheshi	.	.	.	54	56	120	34	12	60	60	120	57	12	14
56	Mahavirabhai	.	.	.	61	59	120	23	12	68	52	120	47	12	15
57	Santoalkumari Jain	.	.	.	63	57	120	38	12	60	60	120	62	12	16
58	Shantidevi	.	.	.	64	56	120	19	12	66	54	120	39	12	12
59	Darabandevi	.	.	.	55	65	120	14	12	5	55	120	45	12	13
60	Santoshdevi	.	.	.	64	56	120	19	12	5	51	120	37	12	15
61	Vimladevi	.	.	.	64	56	120	14	12	3	50	120	33	12	15
62	Shardadevi	.	.	.	55	65	120	19	12	5	60	120	33	12	13
63	Mayadevi	.	.	.	55	65	120	17	12	3	60	120	40	12	15
64	Milapchandrabhai	.	.	.	57	63	120	20	12	5
65	Chhoturamtia	.	.	.	58	62	120	24	12	6

TOTAL

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Name of Parishramalaya : Amber Charkha Parishramalaya, Ambala City (Punjab). Date of Starting 6-1-56 No. of Charkha sets 29.

S. No.	Name of Operative	Class of Spinner	No. of days of attendance	From 10th March 56 to 27th March 56				From 28th March 56 to 13th April 56								
				Duration of work (Hours)				Duration of work (Hours)								
				Car- ding	Spg.	Total	Prodn. hanks	Count	Loss Tolas	Card- ing	Spg.	Total	Prodn. hanks	Count	Loss Tolas	
Age-Sex	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Mayadevi	29 F	84	44	55	99	57	14	30	40	50	90	51	16	25	
2	Ranibai	28 F	75	44	55	99	57	14	30	40	50	90	52	16	26	
3	Santoshkumari	16 F	84	45	57	102	117	16	56	30	60	90	139	16	68	
4	Darshnakumari	15 F	84	45	57	102	117	16	56	30	60	90	139	16	68	
5	Shyanidevi	14 F	84	45	57	102	60	14	34	33	60	93	55	13	34	
6	Prakashkumari	14 F	82	45	57	102	60	14	33	33	60	93	56	13	34	
7	Miragabai	36 F	84	45	57	102	68	14	27	40	55	95	93	15	49	
8	Vevanvali	30 F	84	45	57	102	68	14	27	40	55	95	93	55	49	
9	Kartarbai	28 F	84	45	57	102	44	13	25	40	55	95	63	13	37	
10	Miragabai	25 F	84	45	57	102	44	13	26	40	55	95	63	13	37	
11	Rajkumari	20 F	83	42	54	96	63	16	31	45	50	95	78	16	36	
12	Shantadevi	18 F	81	42	54	96	64	16	32	45	50	95	79	16	36	
13	Bhagvati	45 F	78	45	57	102	37	14	21	40	50	90	48	14	27	
14	Vevanvali	15 F	56	45	57	102	38	14	21	40	50	90	48	14	27	
15	Sahanidevi	35 F	77	42	55	97	48	14	28	40	50	90	48	17	22	
16	Pushparani	15 F	76	42	55	97	49	14	28	40	50	90	48	17	22	
17	Savarnakanta	14 F	75	45	57	102	47	12	28	40	50	90	82	14	43	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
18	Ishwardevi	.	.	.	40 F	78	45	57	102	47	12	28	40	50	90	82	14	43
19	Rampyari	.	.	.	16 F	75	45	57	102	39	14	21	45	60	105	38	14	22
20	Shiladevi	.	.	.	17 F	65	45	57	102	40	14	21	45	60	105	38	14	22
21	Lajjadevi	.	.	.	18 F	66	45	57	102	42	14	22	40	50	90	58	15	30
22	Viravali	.	.	.	42 F	63	45	57	102	42	14	23	40	50	90	59	15	30
23	Jivanbai	.	.	.	18 F	51	36	42	78	41	13	25	40	50	90	146	16	70
24	Sumitrarani	.	.	.	25 F	31	36	42	78	42	13	25	40	50	90	48	14	25
25	Harsharankaur	.	.	.	16 F	48	40	52	92	29	13	18	40	50	90	48	14	25
26	Ramvantkaur	.	.	.	16 F	49	40	52	92	29	13	18	40	50	90	33	13	20
27	Jannadevi	.	.	.	29 F	37	45	57	102	18	13	10	40	50	90	34	13	20
28	Shiladevi	.	.	.	16 F	38	45	57	102	18	13	11						
29	Krishnadevi	.	.	.	16 F	55	39	51	90	48	13	29	45	50	95	54	14	29
30	Miahesaradevi	.	.	.	16 F	55	39	51	90	49	13	29	45	50	95	53	14	30
31	Kamleshkumari	.	.	.	16 F	55	30	52	91	40	13	25	40	50	90	48	14	26
32	Purnadevi	.	.	.	18 F	55	39	52	91	40	13	25	40	50	90	48	14	26
33	Ranibai	.	.	.	14 F	55	41	50	91	28	12	19	45	50	95	30	13	18
34	Shikuntaladevi	.	.	.	14 F	54	42	50	92	28	12	19	45	50	95	31	13	18
35	Vimalarani	.	.	.	18 F	50	39	50	89	41	14	26	40	50	90	45	15	25
36	Gajendrakuvar	.	.	.	17 F	17	55	39	51	90	41	14	27	40	50	90	46	15
37	Pritamkuvar	.	.	.	22 F	54	42	50	92	26	12	20	45	50	95	26	13	16
38	Manjituvar	.	.	.	14 F	51	42	50	92	27	12	19	45	50	95	26	13	17
39	Rameshwari	.	.	.	30 F	47	37	51	88	26	12	18	45	50	95	24	13	15
40	Shantadevi	.	.	.	23 F	50	37	50	87	27	12	18	45	50	95	25	13	15
41	Dhandevi	.	.	.	40 F	55	40	50	90	33	13	20	45	55	100	34	16	17
42	Rajmohani	.	.	.	28 F	46	40	51	91	34	13	21	45	55	100	35	16	17

43	Vimladevi	.	.	.	.	15 F	56	38	49	87	45	13	21	45	55	100	86	16	33
44	Ishwardevi	.	.	.	.	40 F	53	38	49	87	45	13	28	45	55	100	66	16	33
45	Vidhyavari	.	.	.	.	20 F	55	40	50	90	28	12	20	45	55	100	41	14	22
46	Somvati	.	.	.	.	40 F	50	40	50	90	29	12	20	45	55	100	42	14	23
47	Gajendrakumar	.	.	.	.	17 F	47	40	49	89	32	13	21	40	50	90	38	13	23
48	Fulidevi	.	.	.	.	16 F	54	39	49	88	33	13	20	40	50	90	24	13	23
49	Kamaladevi	.	.	.	.	13 F	47	36	50	86	13	11	9	45	50	100	25	11	18
50	Dayavanti	.	.	.	.	17 F	44	37	50	87	13	11	10	45	55	100	25	11	18
51	Kanadevi	.	.	.	.	20 F	44	40	51	91	20	12	15	45	50	95	26	13	5
52	Kukvantkumar	.	.	.	.	16 F	45	40	51	91	20	12	15	45	50	95	17	14	16
53	Krishnavati	.	.	.	.	35 F	45	37	52	89	11	10	8	45	50	95	17	14	12
54	Gomatidevi	.	.	.	.	35 F	38	38	51	89	11	10	9	45	50	95	17	14	12
55	Ishwarkumar	.	.	.	.	28 F	40	40	49	89	14	9	10	45	50	95	20	12	14
56	Savarnadevi	.	.	.	.	14 F	43	39	50	89	15	9	10	45	50	95	21	12	15
57	Vasantkumatri	.	.	.	.	12 F	43	26	38	64	14	11	10	25	35	60	13	12	8
58	Shilladevi	.	.	.	.	25 F	19	26	38	64	15	11	10	25	35	60	13	12	19
59	Rajrani	.	.	.	.	16 F	42	32	47	81	20	10	15	45	55	100	25	13	16
60	Sitadevi	.	.	.	.	14 F	42	34	47	81	21	40	15	45	55	100	26	13	16
61	Chandrakanta	.	.	.	.	16 F	40	34	44	78	8	9	7	45	55	100	15	12	10
62	Prakashadevi	.	.	.	.	14 F	37	34	44	78	9	9	7	45	55	100	15	12	11
63	Jayadekumar	.	.	.	.	17 F	38	40	50	90	24	12	15	45	55	100	32	13	23
64	Blagvati	.	.	.	.	50 F	32	52	60	112	24	12	19	45	55	100	32	13	23
65	Shamidevi	.	.	.	.	13 F	42	41	49	90	23	11	17	45	55	100	30	13	18
66	Chandandevi	.	.	.	.	13 F	40	40	50	90	23	11	18	45	55	100	31	13	19
67	Shantidevi	.	.	.	.	15 F	44	41	49	90	33	13	21	45	55	100	43	14	25
68	Guruchrankumar	.	.	.	.	14 F	42	41	49	90	33	13	20	45	55	100	43	14	25

6,247 3,111

18	Rajrani	85	37	58	95	44	13	23	40	62	102	64	14	32
19	Bhojabai	80	36	60	96	44	13	23	54	63	117	65	14	32
20	Satairani	86	36	51	87	42	16	20	28	54	82	54	13	18
21	Shantidevi	87	44	60	104	63	13	36	42	61	103	67	13	39
22	Sudeshkumari	80	39	50	89	43	16	20	29	55	84	54	13	18
23	Puspakumari	43	36	54	90	66	14	33	26	42	68	42	14	20
24	Uttamdevi	78	40	56	96	67	14	33	28	42	70	43	14	20
25	Viradevi	78	36	56	92	58	14	30	34	48	82	45	14	25
26	Kaushiyadevi	59	37	58	95	59	14	30	36	48	84	46	14	25
27	Gandadevi	40	9	40	49	60	44	12	28	40	68	56	49	13
28	Ramdevi	40	10	43	52	60	44	12	28	39	67	58	49	13
29	Vishandevi	59	18	41	59	58	39	12	25	42	67	60	49	12
30	Devibai	55	18	42	60	60	39	12	25	44	89	59	50	12
31	Satyanani	55	19	36	55	58	35	30	21	38	59	56	48	13
32	Ramdevi	55	19	37	56	60	35	13	22	38	60	55	48	13
33	Dhuparadevi	59	34	44	78	60	56	14	32	38	70	56	51	14
34	Rampyari	58	34	45	79	61	55	14	32	40	72	56	51	14
35	Lilavanti	58	21	36	57	56	52	16	25	30	55	58	51	19
36	Ramdevi	59	22	36	58	58	53	16	25	32	57	59	52	19
37	Karnadevi	57	10	34	44	58	31	13	19	36	55	60	39	13
38	Chetandevi	59	10	35	55	59	32	13	19	38	57	62	39	13
39	Ishwardevi	59	12	37	49	31	43	13	24	36	60	52	44	13
40	Kamleshkumari	56	13	38	51	62	43	13	24	38	62	54	43	13
41	Durgadevi	58	8	38	46	58	44	13	26	36	62	58	41	14
42	Sitadevi	56	9	40	49	59	44	13	27	37	64	59	41	14
43	Laxmidevi	53	12	34	46	56	45	13	26	40	66	60	53	15
44	Pendibai	56	13	36	49	54	44	13	26	41	67	60	53	15

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
45	Sunibai	.	57	13	27	42	69	52	44	13	27	30	57	51	13
46	Jamnadevi	.	57	41	44	85	58	47	15	46	37	83	54	81	21
47	Hukamdevi	.	58	42	45	87	59	100	15	47	38	85	54	81	21
48	Bhagavanti	.	59	13	34	47	48	25	13	15	28	43	52	25	13
49	Bhagvandevid	.	59	13	34	47	58	26	13	16	29	45	57	25	13
50	Premvati	.	58	20	38	58	52	49	16	21	30	51	52	39	16
51	Ramdevi	.	59	21	38	59	54	49	16	22	29	51	50	38	16
52	Chamandevid	.	59	16	38	54	52	29	12	18	31	49	50	29	12
53	Krishnadevi	.	59	16	40	56	50	30	12	19	32	51	28	12	18
54	Surindra Kaur	.	59	35	50	85	30	13	17	22	52	74	25	16	13
55	Mangladevi	.	59	34	51	85	31	13	18	23	50	73	26	16	13
56	Darshankaur	.	55	36	53	89	39	13	20	28	52	80	32	16	14
57	Lajwanti	.	54	38	54	92	39	13	20	29	52	81	32	16	14
58	Sitadevi	.	56	39	56	95	49	13	29	36	54	90	47	14	26
59	Gulodevi	.	56	40	58	98	50	13	29	36	56	92	47	14	26
60	Laxmidevi	.	59	34	48	82	24	12	15	26	52	78	23	13	14
61	Dastan Kaur	.	40	36	50	86	24	12	66	28	54	82	23	13	14
62	Krishnadevi	.	35	32	96	128	29	12	17	34	46	80	35	14	81
63	Krishnadevi	.	39	34	48	82	29	12	17	34	48	82	35	14	29
64	Devibai	.	34	20	51	80	17	13	10	30	50	80	23	13	14
65	Ishwardevi	.	33	28	52	80	17	13	11	32	52	84	22	13	15
66	Darshandevid	.	34	30	52	82	18	11	52	30	60	90	33	13	19
67	Devibai	.	32	52	54	86	18	12	12	30	60	90	34	13	20
68	Pushpakumari	.	34	29	52	81	21	10	14	32	50	82	30	13	18
69	Radhabai	.	34	28	54	82	20	10	14	30	50	80	30	13	19
70	Rampyari	.	31	35	66	101	46	11	28	30	52	82	35	14	19
71	Krishnavanti	.	35	36	67	103	46	13	28	30	54	84	36	14	19

73	Rukmandevi	.	.	.	.	50 F	36	22	40	68	29	13	14	26	52	78	23	12	15
74	Satibai	.	.	.	.	35 F	29	31	59	90	29	12	18	30	44	74	20	14	11
75	Vaidhyavanti	.	.	.	.	27 F	33	32	60	92	30	12	16	30	44	74	20	14	12
76	Pushpavati	.	.	.	.	18 F	32	32	57	89	24	11	16	32	60	92	45	13	25
77	Kishnadevi	.	.	.	.	25 F	31	34	58	92	25	11	16	34	60	94	44	13	25
78	Sitadevi	.	.	.	.	18 F	27	34	52	86	19	13	12	28	48	76	25	16	13
79	Krishnakumari	.	.	.	.	20 F	27	34	52	86	19	13	11	28	48	76	25	16	13
80	Mohandevi	.	.	.	.	22 F	31	38	54	92	20	13	12	28	50	78	25	16	14

Total

6,219 3,720

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
18	Nihali	.	.	.	.	.	.	.	.	.	.	.	.	.	.
19	Indra Kaur	40 F	77	47½	41	88½	47	13	22½	54	41	95	57	13	30
20	Maru Kaur	20 F	73	40½	42½	83	41	12	15	48	48	96	61	14	30
21	Kaushlya	18 F	70½	37	48	85	40	13	26	20	30	50	36	16	15
22	Utrami	20 F	48½	45	41	86	41	13	25	34	40	74	56	16	25
23	Bhagwani	14 F	57	38	48½	86½	38	13	21	46	55	101	81	15	38
24	Bhagwanti	30 F	55	34½	40	74½	25	14	21	45	54	99	72	15	36
25	Lila	18 F	54	40	49	89	37	13	17½	58	46	104	68	14	35
26	Shapuri	20 F	53½	39	46½	85½	25	13	15	50	40	90	60	13	35
27	Yagali	13 F	56	39½	46	85½	19	13	13½	56	53	109	54	16	25
28	Gekli	25 F	58	40	47	88	27	13	15½	52	54	106	89	14	42
29	Shiladevi	13 F	56	53½	34	87½	31	14	16	59	42	101	79	16	36
30	Satwanti	14 F	58	40½	48	88½	49	16	22½	46	47	93	105	14	50
31	Jamunadevi	17 F	58	49	40½	89½	50	10	17½	57	46	113	63	16	30
32	Shankuntladevi	25 F	55½	38	49	87	46	13	22½	43	49	92	62	16	29
33	Virabai	30 F	55½	47	41	88	46	14	20	61	43	104	79	16	40
34	Devibai	64 F	55½	45	40	85	42	15	20	46	49	95	62	16	27
35	Ganeshibai	21 F	55½	41½	49	90½	27	8	15	46	51	97	55	14	30
36	Sangeribai	30 F	57	48½	41	89½	33	13	17½	51	51	102	61	13	38
37	Bebibai	25 F	58	41	47½	89½	45	13	25	50	51	101	60	10	..
38	Lajvanti	18 F	81½	41	47	88	43	16	20½	50	38	88	75	20	35
39	Laxmidevi	16 F	53½	47	41½	88½	23	13	13½	43	60	103	71	13	45
40	Jamuna	20 F	54	47	42	89	38	11	25	45	52	97	69	16	35
41	Prakashadevi	30 F	57	47	42	89	35	10	25	48	49	107	80	13	50
42	Nirmaladevi	22 F	52	41½	47	88½	44	13	27½	53	46	99	78	15	40
43	Lajvanti	22 F	46	41½	47	88½	44	13	27½	53	46	99	75	15	40
44	Krishnadevi	14 F	48½	40	49	89	17	19	10	52	46	98	23	18	8
		16 F	47½	48½	40	88½	25	14	15	44	48	92	60	12	40

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
45	Tharibai	.	14 F	48½	46	42	88	26	13	15	44	44	88	69	16	38
46	Govindibai	.	14 F	30	39½	48½	88	11	11½	12½	41	40	81	30	13	16
47	Ishwar	.	19 F	46	41½	48	89½	45	13	25	50	48	98	135	16	70
48	Jandevi	.	19 F	41	40	42	82	26	11	15	42	36	78	56	15	30
49	Kushalidevi	.	17 F	46	40½	48	88½	36	11	25	49	50	99	76	12	40
50	Bhagwatidevi	.	16 F	28½	45½	40	85½	21	12	12½	27	34	91	28	12	15
51	Premibai	.	24 F	27	47½	42	89½	48	13	22½	47	47	94	70	16	36
52	Gokalibai	.	45 F	56½	48½	41	89½	17	13	10½	50	32	82	26	13	16
53	Shiladevi	.	14 F	26	49	34	83	16	14	10	24	73	97	78	15	41
54	Krishnadev	.	16 F	32	40½	40	80½	16	11	10	42	31	73	11	13	5
55	Ramdev	.	18 F	22½	48	32	80½	4	9	21½	42	35	77	34	13	20
56	Shantakumari	.	16 F	39	40½	41½	88½	46	13	17½	56	40	96	41	22	23
57	Svarsha Kaur	.	15 F	38	40	21½	71½	18	12	10	56	44	100	50	43	30
58	Har Kaur	.	30 F	39	38½	47½	83½	48	12	32½	52	40	92	93	11	28
59	Rajrani	.	30 F	38½	46½	48	87½	26	17	12½	42	47	89	29	14	15
60	Sunde Kaur	.	18 F	36	40½	47½	88½	50	16	22½	48	54	102	40	16	20
61	Jogendra Kaur	.	16 F	38	38½	45½	84	16	12	12½	50	54	104	47	13	29
62	Rakshadevi	.	17 F	40	47½	41	88½	42	13	30½	55	46	101	45	12	32
63	Premalatta	.	16 F	38	41½	35½	77	20	13	11	49	32	81	25	12	15
64	Ranjit Kaur	.	23 F	40	39½	47½	86½	58	14	22½	64	48	112	49	14	40
65	Krishnadevi	.	16 F	34	40½	48½	89	34	13	22½	55	46	101	42	12	26
66	Satyadevi	.	16 F	38	40½	47½	88	31	13	17½	56	50	106	42	12	27
67	Gargidevi	.	30 F	36	40	38½	78½	34	13	20	41	46	87	37	13	24
68	Dhanjit Kaur	.	25 F	35	38	40	88	30	12	20	48	44	92	46	13	25
69	Gurunam Kaur	.	17 F	38½	33	34	67	55	12	12½	49	55	104	84	14	50
70	Bhavganti	.	30 F	39	47	41	88	35	13	21	50	56	106	89	12	50
71	Kamladevi	.	17 F	36	33½	47	80½	55	14	25	61	46	107	61	12	26

Name of Parishramalaya : Abhoy Ashram (1)
Ambar Charkha Prishramalaya, Biharijuria, P. O. Chatarkanali,
Bankura, (West Bengal).

Date of starting : 16-1-56.
Charkha sets: 40

S. No.	Name of operative	Class of Spinner.	No. of trg. days.	From 10-3-56 to 27-3-56				From 28-3-56 to 13-4-56.							
				Duration of work (hours)				Duration of work (hours)							
				Card- ing	Spg.	Total Prodn. hanks	Count tolas	Loss tolas	Card- ing.	Spg.	Total Prodn. hanks	Count tolas	Loss tolas		
-	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Ratikant Banerji	. .	66½	61	51.45	112.45	88	19	26	46½	50½	97½	47	17	19
2	Bholanath Chatterji	. .	72	55.15	50.30	105.45	64	32	15	54	49	103	55	24	10
3	Gobardhan Banerji	. .	63½	60	52	112	76	24	18	28	25	53	33	24	14
4	Sibshankar Banerji	. .	61½	62	11	73	25	22	10	44	42	86	31	18	13
5	Bholanath Patru	. .	74½	60.45	51.55	112	92	19	30	56	58	114	58	19	32
6	Nandadulal Chatterji	. .	23½	67	45	112	113	18	40	56	52	108	17	16	13
7	Paran Ch. Batabyal	. .	74	..	..	..	..	..	..	..	..	..	..	..	..
8	Subol Ch. Chatterji	. .	67	46.15	69	115.15	143	21	60	65	50	115	68	17	28
9	Bhaktadas Banerji	. .	53	49	38.45	87.45	17	13	5	68	42	110	29	14	15
10	Prafulla Kumar Roy	. .	72	14	10.24	..	15	19	13	61	26	87	26	15	20
11	Sadanand Chatterji	. .	54½	64.5	49.45	113.5	88	17	36	53	56	109	53	12	25
12	Anirudhva Banerji	. .	17½	48	25	73	39	24	15	41	42	83	29	21	11
13	Aditya Kumar Batalaya	. .	70½	..	..	..	..	..	..	..	..	..	..	..	..
14	Bhutanath Dey	. .	54	58.15	53.10	111.25	94	21	28	50	35	83	35	15	13
15	Ajitkumar Roy I	. .	52	..	..	..	..	..	..	46	50	96	33	13	11
16	Ashvinikumar Roy	. .	58½	..	..	..	..	..	..	49	35	84	23	12	24
17	Robilochan Tapadar	. .	44	50.45	28.15	78.60	22	20	15	37	26	63	12	12	17

[illegible]

Date of starting 28-11-55
Class of operative : all new
Charkha sets 40

Name of Parishramalaya : Shikshanalaya ()
Arunghata (dt. Nadia—W. Bengal)

From 10th Mar. 56 to 27th Mar., 56 From 28th Mar. to 13th Apl., 56
Duration of work (hours)

S.No.	Name of operative	Class of spinner	Age sex	No. of days of trg.	Duration of work (hours)												Loss tolas	Counts hanks	Total Prod.	Loss tolas
					Spg.	Total hanks.	Prod.	Cornts.	Loss tolas	Card- ing	Spg.	Total hanks.	Prod.	Cornts.	Loss tolas					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16					
1	Belarani Sha .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
2	Binedine Nath .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
3	Sallabala Sutradhar .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
4	Ganesh Chakrabarty .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
5	Suniti Haldar .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
6	Malti Deonath .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
7	Pujadashi Pal .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
8	Kanarani Devnath .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
9	Ahlya Haldar .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
10	Renubala Majumdar .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
11	Sunrabala Pal .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
12	Nirmala Shah .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
13	Famila Das .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
14	Nandrani Biswas .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
15	Laxmirani Sarkar .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
16	Shakti Devi Chattopadhyaya .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
17	Yuguldasi Saha .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
18	Punyabala Das .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
19	Gobinda Majumdar .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
20	Charubala Bagadi	.	.	62½	38½	69½	108	42	16	23	50	63	113	59	16
21	Radharani Kundu	.	.	64	50	70	120	55	16	20	57½	63½	117	81	20
22	Laxmirani Roy	.	.	61	57½	50½	100	25	16	20	40½	43½	84	29	16
23	Sudarshan Sen	.	.	55	38½	32	70½	18	13	17	49	51	100	35	16
24	Makhanlal Das	.	.	31	9	13	22	4	12	2	..	..	..	..	..
25	Sushanta Datt	.	.	58½	48½	61½	110	46	16	18½	45	50	95	53	17
26	Avani Vishwas	.	.	44½	42	62	104	24	15	15	..	..	..	..	..
27	Nirmala Adhikari	.	.	37	21	27	48	9	12	8	..	..	..	..	..
28	Bagirath Vishwas	.	.	50	59	60	119	23	15	17	49½	53½	103	24	19
29	Paranchandra Devnath	.	.	35	42	41	83	20	13	9½	60½	56½	117	3	14
30	Geetarani Datta	.	.	18	30½	41½	72	10	14	2	..	..	..	..	..
31	Pankajini Chakrabarti	.	.	38	25½	28½	54	9	14	1½	50	29	59	14	14
32	Shantilata Saha	.	.	35	44½	51½	96	21	14	17½	50½	55½	106½	40	17
33	Lalmohan Talukdar	.	.	37	52½	50½	111	37	16	14	48½	60	108½	54	14
34	Pramedranjan Viswas	.	.	33½	49½	49½	99	55	16	9½	48	44	92	7½	18
35	Basanti Roy	.	.	27½	53	51	104	25	16	15½	17	2½	38½	12	16
36	Jyetsna Mandal	.	.	37	48½	55½	104½	15	16	16½	59	55	112	32	15
37	Bilwamangal Devi	.	.	38	28½	27½	56	9	13	8½	24	36	60	15	15
38	Narsh Chandra Roy	.	.	36	38½	57½	96	43	18	23½	50	70	120	90	17
39	Arati Deonath	.	.	38	59	61	120	31	14½	22½	49½	60½	110	40	16
40	Sumati Adhikari	.	.	37	55	65	120	27	15	23½	37½	65½	103	20	13
41	Amala Kunda	.	.	39	52	68	120	25	12	22½	50½	69	119½	37	14
42	Reena Biswas	.	.	39	55½	64½	120	33	15	19½	55	64½	119½	37	14
43	Beena Biswas	.	.	38	50½	61½	112	19	16	15½	55½	64½	120	28	15
44	Bhajana Modak	.	.	39	53½	62	115½	16	16	9½	53½	59	112½	40	17
45	Phanindra Sarkar	.	.	19	36½	43½	80	24	13	18	..	..	..	..	..

TOTAL

3973½ 2026

Name of Parishramalaya:

Nazirbazar,
(West Bengal).

Date of starting 17-2-56

S. No.	Name of Operative	Class of Spinner	No. of days of Trg.	From 10th March 56 to 27th March 56										From 28th March 56 to 13th April 56									
				Duration of work (Hours)										Duration of work (Hours)									
				Carding Spg. Total Prodn. Count hanks										Carding Spg. Total Prodn. Count hanks									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Paritosh Pradhan	.	.	69	56	64	120	75	18	30	60	380	96	18	25								
2	Shusilkumar Maitry	.	.	60	64	56	120	31	17	20	31	69	120	90	16	30							
3	Sodamani Maitry	.	.	64	56	64	120	35	18	20	56	65	120	51	16	10							
4	Anjali Bera	.	.	67	56	64	120	40	14	25	68	52	120	31	15	18							
5	Sarojkumara Maitry	.	.	65	56	64	120	55	16	25	44	52	96	49	19	15							
6	Sudhirkumar Maitry	.	.	69	56	64	120	52	16	25	72	48	120	60	18	20							
7	Bhabhar Haran Dhara	.	.	68	56	56	112	38	16	20	56	64	120	61	14	20							
8	Bhairavchandra Sov	.	.	67	56	64	120	39	16	30	54	86	120	105	12	30							
9	Sabadirchandra Mandal	.	.	65	64	56	120	45	16	20	54	66	120	75	16	21							
10	Subodhobanchra Dess	.	.	64	56	64	120	57	16	30	40	40	80	46	15	15							
11	Dhanapati Manna	.	.	69	64	56	120	36	20	20	64	56	120	120	18	20							
12	Sentosbkumar Beg	.	.	69	63	67	130	63	16	30	58	62	120	114	18	40							
13	Marijujoy Roy	.	.	68	56	64	120	58	16	30	60	60	120	60	14	20							
14	Bhagwati Roy	.	.	69	56	64	120	49	16	30	52	68	120	96	16	25							
15	Rajbela Muzamdar	.	.	69	56	64	120	56	16	30	54	66	120	61	16	35							
16	Khudiram Mandal	.	.	67	56	64	130	68	18	20	60	60	120	90	15	25							
17	Ramkrishna Maitry	.	.	65	48	56	104	34	12	20	60	60	120	61	14	20							
18	Prahladchandra Mandal	.	.	66	52	60	112	43	16	20	60	60	120	75	16	20							
19	Surendranath Gayee	.	.	68	64	56	120	53	114	30	54	56	110	105	16	35							
20	Berendranath Gayee	.	.	68	62	58	120	53	16	30	40	80	120	90	14	30							
21	Giishchandra Dalai	.	.	61	56	64	120	56	18	35	50	70	120	100	16	30							

Name of Parishramalaya: Katranka Dt. Midnpur,
(West Bengal).

Date of starting 17-2-56
No. of Charkha sets 20

Class of Spinner No. of days From 10th March, 56 to 27th March, 56 From 28th March 56 to 13th April, 56

S. No.	Name of Operative	Age	Sex	Duration of work (Hours)				Duration of work (Hours)				Carding Spg. Total Prodn. Count				Loss Tolas			
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Swadesh Rayan Sasmal	.	.	22M Old	46½	56	56	112	50	17	20	60	56	116	92	15	20		
2	Nirmala Samanta	.	.	33F Old	48	60	60	120	42	16	14	60	60	120	56	17	26		
3	Jyotsana Rani Das	.	.	13F Old	44½	60	60	120	41	16	14	60	56	116	47	16	20		
4	Bitika Rani	.	.	13F Old	42	40	44	84	17	15	15	60	56	116	31	14	24½		
5	Puspa Rani Das	.	.	13F Old	39	52	56	108	24	16	18	44	40	84	26	16	11½		
6	Bina Rani Patnayak	.	.	15F Old	38	60	60	120	30	20	20	60	60	120	45	20	14		
7	Janki Rani Das	.	.	21F Old	40½	60	56	116	40	16	25	40	44	84	37	16	9		
8	Shanra Bala Jain	.	.	18F Old	43½	60	60	120	57	15	20	48	44	92	44	14	29½		
9	Sharna Rani Jana	.	.	22F Old	46½	60	60	120	46	15	30	60	60	120	83	14	17		
10	Uma Rani Maithi	.	.	20F Old	48	60	60	120	49	18	12	60	60	120	63	16	22		
11	Anant Kumar Maithi	.	.	19M Old	47	60	60	120	56	15	18	60	60	120	71	14	32		
12	Radha Nath Pradhan	.	.	35M Old	44½	60	60	120	54	16	16	60	60	120	66	16	29		
13	Purna Chandra Patn	.	.	24M Old	44	60	60	120	57	18	20	60	60	120	95	16	15½		
14	Laxman Kumar Maithi	.	.	22M Old	45	60	60	120	55	16	41	60	60	120	96	16	31½		
15	Gunadhar Bag	.	.	24M Old	42	56	56	112	17	17	17	56	56	112	56	19	22		
16	Vivekanand Patnayak	.	.	24M Old	41½	60	60	120	42	15	35	44	40	84	55	19	23		
17	Harekrishna Rai Chowdhury	.	.	38M Old	45½	60	56	116	25	12	20	60	60	120	24	12	10		
18	Prabhat Kumar Roy	.	.	22M Old	45	56	56	112	56	18	25	60	60	120	83	14	28		
9	Haripad Samant	.	.	20M Old	45½	60	56	112	65½	16	40	60	60	120	73	14	52		

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
20	Sudhir C handra Jana	.	.	60	60	120	52	16	40	60	56	116	73	14	15
21	Radhakrishana Maithi	.	.	56	52	108	39	18	25	60	56	116	39	18	22
22	Amluya Rattan Maithi	.	.	56	48	104	39	18	21	60	48	108	38	16	16
23	Laxmi Narain Gore	.	.	60	60	120	48	15	20	60	60	120	89	15	36½
24	Ishudhiram Dinsha	.	.	60	60	120	49	15	20	60	60	120	102	15	35
25	Nimecharan Randya	.	.	60	60	120	39	18	20	60	60	120	35	16	21
26	Vaneshwari Maithi	.	.	60	60	120	30	16	12	60	60	120	54	15	17
27	Taraba Mathi	.	.	64	56	120	30	14	15	56	56	112	39	13	22
28	Jaikri shna Maithi	.	.	56	64	120	40	14	25	60	60	120	51	15	24
29	Nagend Nath Giri	.	.	48	56	104	26	15	10	60	60	120	41	12	17½
30	Veeranand Dass	.	.	66	54	120	30	15	15	60	60	120	64	13	35
31	Madhusudan Das	.	.	52	52	104	37	14	20	48	48	96	41	14	29
32	Sathish Chandra Maithi	.	.	56	52	108	40	15	13	56	60	116	61	16	29
33	Nikhil Ranjan Sen	.	.	48	48	96	26	14	16	60	60	120	64	14	20
34	Sunil Kumar Chanda	.	.	68	52	120	26	13	15	60	60	120	34	13	34½
35	Ganesti Chandra Adhak	.	.	60	60	120	40	15	18	60	60	120	44	14	34½
36	Satish Chandra Adhak	.	.	60	60	120	40	14	20	60	60	120	46	14	19
TOTAL												4108	2065		

Date of starting 9th January, 1956.

Name of Parishramalaya : Ambar Parishramalaya, Mangalagiri, District Guntur. (ANDHRA)

S. No.	Name of Operative	Class of spinner	No. of days of attendance	From 10th March 56 to 27th March 56				From 28th March 56 to 13th April 56				Date of starting 9th January, 1956.			
				Duration of work (hrs)				Duration of work (hrs)				Date of starting 9th January, 1956.			
				Card- ing	Spg. Total	Prod'n. hanks	Count	Loss Tolas	Carding	Spg. Total	Prod'n. hanks	Count	Loss Tolas		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Ganji Venkataravani	30 F	73	22½	41½	64	26	13-18	21	34½	54	88½	63	13-18	36
2	Panidappu Rajalaxamma	35 F	68	29	31	60	21	12-15	10	37	50½	87½	38	12-15	24
3	Parvathamma	20 F	73	34	47	81	24	12-15	21	35	51½	86½	34	12-15	26
4	Ganji Sithamma Laxmi	25 F	48	6½	7½	14	5	12-15	..	8	11	19	8	12-15	4
5	Ganji Sithamma	40 F	68	31	52	52	16	12-15	14	27½	28½	56½	21	12-15	15
6	Jothradul Koteswaralu	20 M	52	18	4	22	2	15-18	3	2	4	6	2	15-18	..
7	Kotali Venkateswaraly	35 M	20	6	4	10	2	18-20	3	..	..	..	..	..	..
8	Kunnerla Nageswara Rao	19 M	72	30	55	85	44	18-20	17	37	60	97	97	12-20	31
9	Vasi Reddy Akilanamma	45 M	64	24	38	62	22	15-18	28	44½	56	100½	53	15-18	31
10	Injavarpu Iswaramma	45 M	61	26½	27	53½	11	15-18	10	27	29	56½	18	15-18	11
11	Panithapu Venkaiesubamma	45 M	72	44½	61	105½	59	15-18	38	46½	61½	108½	79	15-18	60
12	Adigopul Sesharthamma	30 F	72	47	57	104	54	15-18	45	47½	58	105½	81	15-18	60
13	Joshi Vasantasayamma	40 F	54	29	18	47	7	15-18	7	10	12	22	7	15-18	4
14	Ganji Sivaramakrishna	22 M	56	47½	51	98½	26	15-18	21	21½	17	38½	11	15-18	7
15	Kantra Venkatasubamma	45 F	41	13	7	20	4	15-18	4	43	51½	94½	41	15-18	30
16	Gunti Sivamma	45 F	74	25½	40½	66	27	15-18	21	40	49	89½	42	15-18	28
17	Tiruvikula Nagamalleswaramma	19 F	57	20	26	46	18	15-18	10	36	42	78	37	15-18	28
18	Jolladulla Iswaramma	45 F	47	3	6	9	2	15-18	..	33	36	69	25	15-18	14
19	Jolladulla Sitharamma	19 F	43	4	3	7	1	15-18	..	9½	5	14½	2	15-18	7
20	Bitra Kanakamma	35 F	70	20	31	51	18	15-18	14	34½	40½	75	45	15-18	30

6 M of Production.

Ambar Parishramalaya, Kandukur (ANDHRA)

Date of starting 26th January 1956.
Number of Charkha sets : 40

Name of spinner	Class	No. of days of Spinner Training	From 10th March 56 to 27th March 56					From 28th March 56 to 13th April 56.					From 14th April 56 to 29th April 56.				
			Duration of work (Hours)					Duration of work (Hours)					Duration of work (Hours)				
			Car- ding	Spg.	Total	Prodn. hanks	Count	Loss	Tolas	Car- ding	Spg.	Total	Prodn. hanks	Count	Loss	Tolas	Count
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	K. Brahmish.	35 M	64	66½	16½	83	47	13	47	54½	12½	67	48	13	25		
2	K. Cholumiah	45 M	59	65½	..	80½	18½	10	17	36	120	16	16	10	10		
3	N. Kondrniah.	26 M	68	65½	16½	82	29	13	29	62	21½	83½	42	13	82		
4	N. Ch. Naraimahan	18 M	27	..	..	..	..	..	..	..	..	..	..	..	9		
5	N. P. Haraimahan	45 M	60	42	7	49	10	12	10	60	20½	80½	29	12	329		
6	N. Subhaiya	30 M	63	58½	16½	75	26	13	26	58	23	81	41	13	81		
7	M. Rajaiya	30 M	66	61	14	75	20	13	20	54½	21½	76	39	13	39		
8	Y. Kanakahaiah	20 M	68	61½	13½	75	17½	12	17	63	17	80	32	12	32		
9	M. Ch. Ramaiah	35 M	60	58	18	76½	26	13	26	59	22	81	34	13	34		
10	Y. Ankaiah	20 M	67	63	17	80	20	12	20	68½	18½	77	31	12	31		
11	Y. Lingniah	35 M	66	59	16	75	28	14	28	59	18	77	32	14	42		
12	K. Subbalaiah	40 M	64	58	13	71	1½	10	12	57½	25½	83	37	10	37		
13	M. Ch. Haraniah	18 M	20	..	..	..	..	..	..	..	..	..	..	..	..
14	M. Sitaiah	20 M	25	..	..	..	..	..	..	..	..	..	..	..	..
15	M. Sitamma	25 F	68	57½	22	79½	34	12	34	60½	23½	84	42	12	82		
16	K. Rangamma	25 F	39	14	5	19	3	10	3	..	..	..	..	..	..
17	K. Bavavaiah	30 M	28	..	..	..	..	..	..	..	..	..	..	..	..
18	K. Papamma	50 F	38	31½	3	34½	5	10	5	..	..	..	..	..	..
19	M. Ch. Ankamma	30 F	60	60½	22½	83	43	15	83	47	25	73	47	15	7		
20	Ch. Hagbawamma	90 F	67	56	24	80	18	12	18	59	20	79	41	12	81		

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
21	M. Celawrdhamma.	.	.	38 F	57	47½	22½	70	30	14	30	25	I	35	20	14	20
22	K. Lakshammia	.	.	32 F	65	65	16	81	24	14	24	56½	15½	72	25	14	25
23	N. Kottamma	.	.	25 F	65	54	16	70	24	12	24	59	21	80	45	12	33
24	M. Mahalakshamma	.	.	40 F	68	65	12	77	13.2	10	13	62	18	80	29	20	29
25	N. Lakshmma	.	.	25 F	26	..	..	..	..	..	..	..	..	..	..	..	..
26	B. Mukhamma	.	.	30 F	25	..	..	..	..	..	..	..	..	..	..	..	..
27	B. Kondaiah	.	.	40 M	65	58	19	76	22	13	22	49	18	67	38	13	38
28	Y. Kasturmma	.	.	30 F	46	35½	7	42½	6	10	6	..	..	..	..	..	..
29	M. Sushmma	.	.	16 F	68	47½	47	84½	88	16	168	47½	41½	89	102	16	188
30	M. Venkaiah	.	.	18 M	66	60½	28	88½	49	16	89	54	29	83	57	16	97
31	M. Manikyam	.	.	18 M	65	58	14½	72½	21	12	21	51	16	67	29	12	29
32	M. Venkateshwarhia	.	.	20 M	34	..	..	..	..	..	..	..	..	..	..	..	..
33	M. P. Ramaiya	.	.	45 M	67	60	15	75	19	12	19	64	17	81	33	12	33
34	M. Ankaiya	.	.	20 M	26	..	..	..	..	..	..	..	..	..	..	..	..
35	M. P. Ankamma	.	.	30 F	60	42	6½	48½	10	10	10	60	17	77	25	10	27
36	B. Sitamma	.	.	40 F	62	53	25	78	20.2	12	20	38	13	51	27	12	25
37	M. Harinmayamma.	.	.	16 F	59	27	8	35	9.0	12	9	59	23	81	45	12	85
38	G. Vankamma	.	.	20 F	35	60	18	78	17.3	12	17	16	4	20	9	12	9
39	G. Kottamma.	.	.	20 F	25	..	..	..	..	..	..	..	..	..	..	..	..
40	H. S. Murti	.	.	18 M	44	29	5	33	4	10	4	..	..	..	..	..	..
41	S. Meerambi	.	.	45	37	55	19	74	22	22	10	56	27	83	56	10	96
42	S. Bhibhijohan	.	.	30 M	37	58	19	77	16	10	16	60	19½	79½	37	10	36
43	S. Chandabebam	.	.	16 F	37	52	19½	71½	11.2	10	11.1	58	23	81	42	10	82
44	G. Chousti	.	.	15 M	38	54	23	77	14.1	10	14	60	18	78	32	10	32
45	K. V. Fullinpa.	.	.	35 F	35	57	27	84	40	12	1	55	21	76	42	12	82

Name of Parishramalaya : Ghantsala

(Andhra State)

Serial No.	Name of operative	Class of spinner	No. of days of attendance	From 10th Mar., 1956 to 27th Mar., 56 From 28th March, 1956 to 13th Apl., 56													
				Duration of work (hours)								Duration of work (hours)					
				Card- ing	Spg.	Total	Pro- duction	Hanks	Count	Loss	Tolas	Card- ing	Spg.	Total	Pro- duction	Count	Loss
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	V. Sarojini Devi	.	82	49	36	85	70	14	60	40	21	61	50	14	50		
2	G. Subbamma	.	90	65	30	95	30	13	24	60	30	90	43	13	30		
3	G. Rattamma	.	90	65	26	91	44	14	30	75	45	120	20	13	60		
4	G. Laxmikanthamma	.	75	53	30	83	58	14	45	17	10	27	41	14	20		
5	V. Udayalaxmi.	.	90	52	26	78	31	13	20	75	15	90	97	13	40		
6	B. V. Subamma	.	90	52	32	84	32	16	15	55	37	92	37	16	18		
7	G. Manickam	.	90	41	42	83	44	12	25	60	45	106	104	12	60		
8	T. V. Lassaruma	.	90	56	42	98	45	12	25	68	38	106	108	12	60		
9	Y. B. Kutumbamma	.	90	51	26	77	19	13	10	60	35	95	48	12	25		
10	K. Sektanann	.	90	64	27	91	40	13	20	75	45	120	132	14	80		
11	V. L. Kanthamma	.	80	65	26	91	41	13	20	40	30	70	51	13	25		
12	V. Lakshmiswarama.	.	90	65	26	91	55	13	30	67	30	97	78	14	35		
13	K. Danalaxmi	.	90	72	22	94	41	14	20	75	45	120	112	19	50		
14	K. Venkatasubamma.	.	90	58	29	87	45	14	20	60	44	104	105	14	50		
15	V. Sakhubhai	.	87	56	31	87	21	14	15	60	30	90	34	15	15		
16	V. Jayalakshmi	.	90	65	26	91	32	14	15	65	35	100	49	13	30		
17	V. Yasodamma	.	90	50	42	42	60	15	30	37	65	102	87	14	50		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
18	V. Subamma	.	.	.	66	42	108	57	15	30	45	60	105	75	15	35	
19	V. Subbarao	.	.	.	88	45	9	54	15	7	71	19	90	40	14	20	
20	V. Vimalamba	.	.	.	82	48	45	93	82	15	40	24	14	38	43	14	20
21	R. Rajalaxmi	.	.	.	90	67	26	93	26	13	14	75	15	90	57	14	30
22	N. Bullemma	.	.	.	88	50	36	86	39	15	20	52	30	83	59	15	30
23	G. Navaratnam	.	.	.	75	50	44	91	14	15	50	25	9	34	22	14	10
24	G. Seetamma	.	.	.	89	44	22	66	13	13	7	33	56	89	36	13	16
25	V. Prabhavathy	.	.	.	85	65	15	80	15	15	7	33	57	90	36	13	16
26	B. Rajalaxmi	.	.	.	76	57	32	89	40	14	20	69	37	106	49	15	22
27	J. Raghavamma	.	.	.	90	60	29	89	46	15	20	60	45	105	976	16	40
28	J. Susheela	.	.	.	90	50	34	84	39	15	17	60	45	105	97	16	45
29	B. Dhanalaxmi	.	.	.	.	.	.	.	.	.	71	30	101	53	15	25	
30	K. Seetharamaya	.	.	.	90	65	26	81	26	13	14	75	20	95	57	14	30
31	V. Yasodamma	.	.	.	90	59	31	80	25	15	10	56	36	92	43	14	20
32	I. Jayamma	.	.	.	90	55	33	88	45	15	20	60	45	105	100	16	45
33	V. Nimmavathy	.	.	.	90	67	26	93	28	14	14	50	40	90	45	15	20
34	G. V. Ratnam	.	.	.	90	50	36	86	45	15	20	60	45	105	105	14	50
35	B. R. Tulasi Amma	.	.	.	75	61	36	97	39	13	20	18	8	26	19	14	10
36	A. Raghavamma	.	.	.	90	45	39	84	27	13	15	30	30	60	67	13	20
37	G. Seetharamaya	.	.	.	90	49	16	65	20	16	10	60	30	90	34	17	14
38	A. Achamma	.	.	.	90	47	37	84	47	13	20	61	30	91	30	13	15
39	B. Ramulu	.	.	.	90	48	33	81	29	13	15	36	56	92	35	13	16
40	G. Seetaratnam	.	.	.	70	37	15	52	19	12	10	60	30	90	32	12	15
41	K. Sukhavan	.	.	.	70	57	30	87	30	15	15	45	35	80	15	15	7
42	V.S. Laxmi	.	.	.	50	48	20	68	10	10	7	.	.	.	.	.	.
43	V. Jayapradha	.	.	.	64	59	16	75	17	10	10	60	30	90	21	12	12
44	V. Sralashmi	.	.	.	67	57	23	80	15	15	7	52	45	97	45	15	20
45	V. Dasatamma	.	.	.	70	59	22	81	28	14	15	75	45	120	155	15	75

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
46	V. Sitarma .	—	66	56	32	88	30	15	14	60	30	90	60	15	30
47	K. Veerasamma	—	67	68	32	100	15	15	7	45	44	89	40	14	20
48	V. Sevarasam .	—	78	67	21	88	32	14	16	60	30	90	75	15	35
49	V. Sarojani .	—	70	55	24	79	24	12	15	55	41	96	45	15	20
50	K. Nirmala .	—	68	58	27	85	26	13	15	60	30	90	40	14	18
51	K. Sampurnamma	—	70	57	19	76	18	12	10	62	28	90	34	15	19
52	V. K. Kumari .	—	70	56	26	82	25	13	14	60	30	90	49	15	20
53	B. Goseendranuma	—	30	48	24	72	15	15	7	..	..	..	..	..	..
54	D. Veeralashmi	—	65	47	21	66	13	13	7	63	30	93	45	15	20
55	D. Sarojani	—	68	52	16	68	13	13	7	60	30	90	30	15	15
56	D. S. Lakshmi	—	30	..	..	..	..	..	..	..	..	..	..	..	..
57	G. Sitaramma .	—	70	52	35	87	43	18	17	60	30	90	61	18	20
58	V. Visalakshamma	—	70	48	28	76	39	15	16	58	34	92	70	15	30
59	B. S. Vasanna	—	68	57	37	94	53	13	20	60	31	91	80	15	35
60	M. Venkatasubamma	—	70	56	19	84	18	12	10	66	33	99	88	13	20
61	M. V. S. S. Denalakshmi	—	70	61	19	80	18	12	10	66	32	98	38	13	20
62	V. Sakuthalamma	—	70	52	30	82	55	14	25	75	45	120	135	13	70
63	K. Pushpavati	—	69	66	27	93	31	15	14	72	25	97	52	13	25
64	K. Annasiamma	—	70	70	24	94	13	15	14	69	21	90	52	14	20
65	D. Sasilamma	—	68	65	23	88	31	14	15	40	40	80	54	15	20
66	V. K. Kumari .	—	70	60	21	81	22	14	10	60	60	100	54	15	20
67	M. S. Mahalakshmmamma	—	69	55	29	84	29	16	16	60	31	91	84	16	35
68	V. L. Esvaramma	—	64	40	12	52	15	15	7	52	45	97	45	15	20
69	V. Sitaratnam .	—	69	55	26	81	30	14	14	61	31	92	57	15	25
70	P. Pushpavati .	—	70	47	35	82	30	14	14	60	30	90	60	15	25
71	D. Kobaswaramma	—	68	60	26	86	29	13	12	61	30	91	57	14	24

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
72	D. Rosamma .	.	.	.	36	88	31	14	15	60	33	93	84	14	36
73	K. Thulasamma .	.	.	.	30	90	46	13	20	45	30	75	16	16	7
74	G. Retnakumari .	.	.	.	24	76	12	12	7	58	32	90	35	15	15
75	G. Dhanalakshmi .	.	.	.	31	83	33	11	20	60	30	90	74	14	35
76	V. Varamma .	.	.	.	26	91	48	14	20	60	45	105	135	13	70
77	V. Rampuramma .	.	.	.	.	.	.	.	.	60	30	90	64	14	50
78	G. Nagaiya .	.	.	.	30	87	30	14	14	60	45	105	150	15	70
79	V. Sreelashmi .	.	.	.	26	78	19	12	10	57	41	98	30	15	14
80	V. Dulassamma .	.	.	.	25	73	13	13	6	46	30	76	31	15	14
81	V. V. Subamma .	.	.	.	36	61	13	13	6	52	30	82	32	15	14
82	K. Ratnabhusnam .	.	.	.	60	88	13	13	6	51	44	95	31	15	14
83	B. Radhakrishnamoorthy .	.	.	.	55	75	10	10	6	43	22	65	26	13	14
Total .												7237	4785		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
15	Guddahi Shitamma	20 F	68	85	59	144	48	12	10	45	32	77	32	14	10
16	Sharlvahi Laxminamma	26 F	24½												
17	Mangar Sunnamma	28 F	68½	79	44	123	63	12	10	54	30	84	47	13	12
18	Raji Dakshayani	26 F	70½	105	63	168	98	12	9	55	28	83	55	11	10
19	Sudadi Rangnathkamma	34 F	70	119	72	191	72	12	9	54	27	81	54	11	10
20	Raji Punnamma	28 F	74	119	65	184	106	11	10	56	27	83	66	12	10
21	Pinnamvankat Sunnamma	24 F	21½												
22	Mundarti Krishnavennamma	50 F	46½	28	13	41	7	10	5						
23	Padval Sunnamma	45 F	47	26	12	38	7	10	5						
24	Kandali Sarsattamma	36 F	42	38	15	53	7	10	5						
25	Kandali Manekchumma	34 F	42	17	6	23	2	11	0						
26	Nand Shavamma	30 F	52½	44	24	68	16	12	10						
27	Bannas Sunnamma	28 F	29½												
28	Kalyan Vankat Sunnamma	16 F	42												
29	Jakka Magamma	16 F	71	100	57	157	52	12	10	49	25	74	38	12	10
30	Ganli Kankamma	15 F	42½	14	8	22	7	13	10						
31	Jakka Apamma	18 F	70½	86	45	131	63	12	10	49	30	79	50	13	10
32	Muderam Sunnamma	33 F	77	101	63	164	70	14	10	56	27	83	50	14	10
33	Akusati Lakshamma	45 F	51½	60	32	92	33	13	9						
34	Pappas Jalamma	28 F	38												
35	Gundi Alivallamma	45 F	47½	30	15	45	10	12	9						

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
36	Sennamohan Vankatratnama	.	32 F	18½											
37	Alehi Sunnaratanamma	.	21 F	47½	86	47	133	69	12	8	30	82	62	13	10
38	Nadimohan Sarojini	.	20 F	17											
39	Arde Datsachamma	.	28 F	60	107	76	183	55	11	10	45	32	77	38	10
40	Sapparasu Rattamma	.	20 F	58	107	79	186	56	14	10	41	24	65	38	10
41	Rajyalup Akayamma	.	10 F	38	54	27	81	12	13	12	.	.			
42	Ade Pravahanna	.	14 F	61	111	72	183	43	14	10	45	31	76	31	9
43	Nandam Ansurah	.	19 M	29	41	24	66	11	15	10					
44	Nanddrita Ravappa	.	16 M	31	31	45	14	10	14	12					
45	Maikuri Koderu Nanappa	.	18 M	31½	50	16	46	6	13	9					
46	Madupuri Rakhamma	.	20 F	36½	50	27	77	12	12	10					
47	Vediraneni Samrajya	.	22 F	36½	51	31	82	19	11	10					
48	Nandam Shashejani	.	19 F	60	100	68	168	41	11	10	45	32	77	34	8
49	Abbas Ratamma	.	24 F	53½	92	76	168	33	12	9	44	34	78	27	7
50	Anndat Rapinna	.	26 F	56½	109	76	185	72	14	8	47	25	72	54	9
51	Mundi Nangaramma	.	27 F	54	94	83	177	45	13	7	40	32	72	31	6
52	Pankuri Salamma	.	25 F	54	120	60	180	33	13	9	46	34	79	36	7
53	Nannivadi Shrilakashmi	.	24 F	52½	100	81	181	38	14	10	44	39	83	28	10
54	Mundaki Vankataubamma	.	23 F	57½	97	81	178	36	14	10	40	32	72	29	10
55	Maddin Ratamma	.	23 F	26½	89	90	179	35	15	10	44	33	77	23	10
56	Mudam Vankat Sulamma	.	24 F	28½	34	33	67	5	16	10					

Name of Parishramalaya : Ambar Charkha Parishramalaya
Narayaram,
Chittoor District. (Andhra)

Date of Starting 17 January 1956.
Number of Charkha sets : 20

From 10th March, 56 to 27th March, 56 From 28th March, 56 to 13th April, 56.

Serial No.	Name of operative	Class of Spinner	No. of days of attendance	Duration of work (hours)																Count tolas	Loss tolas
				Duration of work (hours)			Prod'n. hanks	Count tolas	Duration of work (hours)			Prod'n. hanks	Count tolas								
				Card-ing	Spg.	Total			Card-ing	Spg.	Total										
														Card-ing	Spg.	Total					
Age-Sex				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
1	Seshamma	18 F	74	67	43	110	70	16	25	67	49½	116½	107	18	40						
2	P. Sakuntalamma	20 F	69	45	27	72	48	15	12	46½	55	119½	98	18	49						
3	S. Sengaramma	15 F	76	75	41	116	44	14	26	64	55½	119½	55	16	30						
4	A. Chengamma	42 F	67	49	37	86	26	13	24	60	58	118	45	14	39						
5	I. Ramanamma	30 F	71	73½	36	109½	32	14	30	68½	32	100½	35	14	16						
6	P. Tayamma	35 F	70	34½	52	86½	43	16	25	57½	62	119½	103	18	35						
7	L. Chengamma	33 F	67	75½	34	109½	43	15	40	48½	23½	72	32	16	18						
8	J. Narasamma	45 F	36	..	..	..	..	..	..	..	..	..	..	..	..
9	R. Govindamma	20 F	75	74	36½	110½	50	16	45	71	43	114	84	20	42						
10	S. Savitamma	20 F	68	40	23½	63½	27	18	24	73	42	115	78	20	34						
11	K. Nagaratnamma	15 F	75	67	49	116	58	20	34	64	55	119	91	20	26						
12	R. Radhamma	30 F	76	76	32½	108½	38	15	30	76	42	118	67	16	30						
13	M. Sarojamma	15 F	75	72½	38	110½	37	13	35	75½	39½	115	47	14	25						
14	K. Kannamma	28 F	66	32	45	77	33	14	21	53	56	109	52	14	32						
15	P. Tayaramma	20 F	73	49½	44½	94	44	15	24	55½	59½	115	86	16	38						

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
16	G. Ratnamma	.	.	.	25	F	76	53	61½	114½	57	13	89	18	38
17	D. Kannamma	.	.	.	20	F	75	58	61½	119½	68	14	100	15	42
18	K. Lakshmanamma	.	.	.	45	F	71	56	42	98	29	14	98½	36	14
19	C. H. Munilakshmma	.	.	.	40	F	30	..	..	..	..	..	..	..	..
20	C. H. Subeelamma	.	.	.	15	F	74	75	29½	104½	25	13	34	14	28
21	B. Munemma	.	.	.	20	F	74	55½	59	114½	80	18	99½	20	40
22	B. Desamma	.	.	.	24	F	73	46½	55½	102	53	16	110	16	34
23	M. Ademna	.	.	.	35	F	73	50	57	107	48	14	72	14	34
24	P. Andalamma	.	.	.	23	F	43	..	..	..	..	..	38½	21	11
25	M. Munemma	.	.	.	20	F	71	61	43½	104½	45	15	104	16	65
26	M. Andalamma	.	.	.	25	F	61	31	25	56	30	15	10½	16	29
27	G. Padmanamma	.	.	.	30	F	70	64	50	114	61	15	79	15	25
28	P. Alivelamma	.	.	.	24	F	64	51½	51½	83	44	16	85	18	40
29	C. H. Ramakrishnaiah	.	.	.	40	M	60	78½	36	114½	44	16	43	18	17
30	N. Doraswami	.	.	.	25	M	67	45	48	93	33	18	68	18	26
31	A. C. Venkatrailu	.	.	.	20	M	57	50	43	93	49	18	..	..	..
32	K. Subramanian	.	.	.	15	M	74	70½	45	115½	47	16	42	16	25
33	G. Narayanamma	.	.	.	25	F	67	74½	33½	104	34	16	115½	16	25
34	C. H. Daudamma	.	.	.	35	F	63	65½	51	116½	34	14	109	14	25
35	K. Kanakamma	.	.	.	35	F	44	51½	61½	113	22	16	80½	16	21
36	C. H. Ranganma	.	.	.	30	F	30	62	26	88	16	16	31	5	6
37	D. Bhagyamma	.	.	.	30	F	18	16	8	24	4	..	118	41	20

Total

3577 2151

Name of Parishramalaya : Hubli (Distt. Dharwar)

Serial No.	Name of operative	Class of operative attendance	From 10-3-56 to 27-3-56					From 28-3-56 to 13-4-56					Count of yarn spun in process (Totals)		
			No. of days	Duration of work (Hours)		Pro-duction in hanks	Count of yarn spun in process (Totals)	Duration of work (Hours)		Pro-duction in hanks					
				Card- ing	Spin- ning			Card- ing	Spin- ning						
											Total	Total			
Age-Sex															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Amburaj Kulkarni	40 F	80												
2	Vannala Kulkarni	18 F	112	36½	39½	76	42	18	14	41	50	91	63	16	19
3	Mainabai Kulkarni	48 F	123	49	51	100	64	18	21	43	40	83	61	22	19
4	Sudhabai Kulkarni	18 F	128	54½	52½	107	74	18	24	59	53	102	100	24	30
5	Padmawati Navalagund	28 F	111	74½	44	91½	51	20	17	42	44	67	66	20	20
6	Narasubai Kulkarni	20 F	109	43½	41	84½	52	20	17	35½	39½	75	52	20	18
7	Radhabai Shalidar	18 F	122	46½	45½	92	92	20	29	35	44	79	87	18	30
8	Avvakka Koppad	20 F	126	48½	53½	102	68	18	21	47½	54½	102	80	17	25
9	Sitabai Divate	30 F	100	49½	59	108½	101	16	30	50	67	117	133	16	40
10	Basavanneva Bhandari	32 M	79	20½	20½	41	25	14	71						
11	Kamalbai Irakal	25 F	108	51½	59½	111	100	18	30	50½	67	117½	122	18	40
12	Narnadabai Divate	18 F	108	54½	55	109½	73	16	22	48	65½	113½	92	16	25
13	Leelabai Gudi	20 F	117	48½	53½	102	68	18	21	47½	54½	102	80	17	25
14	Ramabai Gokuraa	24 F	69							36½	67½	104	74	20	26
15	Shardabai Bhat	24 F	71	13	18	31	17	18	11	7	15½	282½	10	14	4
16	Sarlabai Gudi	18 F	108	46½	50½	97	57	18	18	38	49	87	58	16	15
17	Sarojini Tatki	20 F	55	38	41½	79½	30	14	10	31	—3	6½	3	14	14
18	Bhimabai Kumthekar	26 F	80	50	54½	104½	85	18	25	53	63	116	101	16	39

19	Rukmini Bai Kulkarni	.	.	.	34F	79	44	46	90	65	18	19	44	45½	89½	68	14	23
20	V. N. Sidamal	.	.	.	24F	119	39½	55	94½	98	20	30	48½	48½	97	105	20	13
21	S. S. Chanekar	.	.	.	20F	116	32	33½	65½	49	20	15	29½	30½	60	54	20	18
22	D. V. Chavati	.	.	.	24F	79	47½	53½	101	53	20	16	29½	36	65	39	22	13
23	Ranganath Joshi	.	.	.	35M	99	30	20½	55½	41	18	12	23½	32½	57	51	20	17
24	Bhau Mokashi	.	.	.	30M	98	32½	39½	72	45	16	13	8	6½	14½	5	12	2
25	Dheendra Gudi	.	.	.	26M	115	36	42	78	56	14	17	12	8½	20½	18	22	7
26	Chidambar Dabade	.	.	.	22M	102	33	47½	80½	50	18	16	31½	41½	73	46	19	16
27	Raghvendra Nagaral	.	.	.	24M	115	52½	55½	118	68	20	20	50	60½	100½	79	19	26
28	Vishnu Mamadapur	.	.	.	20M	85	49½	55½	105	55	16	17	41	62	102	80	18	26
29	Shreepad Kulkarni	.	.	.	19M	88	..	..	..	..	..	..	19	20½	39½	28	16	6
30	Verupaksh Kurtkoti	.	.	.	18M	111	39	46½	85½	57	16	18	38	50	88	45	18	16
31	S. K. Shalawadi	.	.	.	24M	97	47½	46	93½	55	18	18	39½	38	78	54	20	16
32	H. S. Phappar	.	.	.	23M	112	49	36½	85½	67	18	20	53½	53½	107	77	20	27
33	C. Raghvendra	.	.	.	25M	94	35	36½	71½	47	18	15	39	38½	77½	59	20	20
34	S. V. Sardeshpande	.	.	.	22M	112	55	53	108	75	18	22	54½	50½	105	81	20	7
35	S. G. Joshi	.	.	.	20M	108	40½	43	83½	47	18	15	54½	52½	107	59	18	20
36	V. N. Joshi	.	.	.	24M	105	57	52	109	72	18	21	67	65½	132½	69	20	20
37	R. C. Dabade	.	.	.	24M	105	46½	43½	90	51	18	18	40	39	79	61	20	17
38	S. R. Katti	.	.	.	20M	107	47	45½	92½	58	18	15	56½	44½	112	114	18	35
39	V. R. Karogal	.	.	.	24M	99	54½	56	110½	54	16	16	14	22	36	18	16	6
40	N. M. Joshi	.	.	.	22M	106	50	59	109	50	16	15	58½	53	111½	50	18	16
41	S. C. Gadideppagowda	.	.	.	20M	74	25½	23	48½	..	14	7	44	44	88	42	14	14
42	Mohan Kulkarni	.	.	.	18M	77	52½	50	102½	60	16	18	44	54	98	76	16	25
43	V. M. Kenekar	.	.	.	20M	91	53	52	105½	15	14	15	49½	53	102½	75	16	25
44	J. N. Kulkarni	.	.	.	30M	93	48½	53	101½	82	17	24	49	58	107	91	18	28
45	Tukaram Naik	.	.	.	24M	99	44½	41	65	63	18	18	17	17	31	34	22	2
46	Arijun Joshi	.	.	.	18M	71	45½	57	102½	45	15	14	40½	55	95½	49	18	17
47	Chandrakant Badalkar	.	.	.	16M	31	53	55	108	44	16	13	53½	54½	110	60	16	18

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4	Madhusudan Dudalkar	16M	29	42½	49½	92	41	16	12	40	46½	86½	52	16	16
49	Madhukar N. Kulkarni	16M	29	32	43½	75½	28	18	9	34½	46	80½	51	20	17
50	N. G. Kembhavi	30M	..	..	..	..	..	..	..	..	..	..	..	..	..
51	Parvati Kosmin	18F	90	46	47½	93½	47	18	15	48½	55½	104	67	18	28
52	Anusuya Kambhar	24F	83	6	6½	12½	14	16	4	50½	55	105½	102	18	36
53	Prema Amasi	18F	108	52½	54	106½	73	18	21	49½	55½	105	87	18	26
54	Parvati Dharam	22F	106	54	54½	108½	68	16	20	50½	55½	106	78	20	26
55	Neelavva Alavandi	24M	111	47½	54½	102	77	18	24	51½	55½	107	93	20	26
56	Guhma Hulalanni	48F	111	52½	54½	107	69	18	20	44½	54½	100	78	18	26
57	Vajravu Makhan	44M	101	50½	54	104½	56	18	16	51½	54½	106	79	18	27
58	Gangavva Hitnal	52M	78	47	50	97	38	17	12	..	..	..	..	..	..
59	Chandravva Madanabhavi	40F	103	53½	54	107½	69	10	20	46½	56	102½	92	20	30
60	Phatima Tatagar	30F	109	52½	55	107½	104	18	31	52	56½	109	127	18	42
61	Rangavva Umakai	30F	110	51	54	105	65	16	19	46½	52	100½	73	16	25
62	Jannatabu Madewale	26F	111	52	53	105	62	16	18	43	55	98	74	16	25½
63	Prema Teggi	18F	103	49	50	99	74	16	23	48	55½	109½	89	18	30
64	Kusumavati Jamakhandi	25F	101	52	55	107	97	20	30	48	56	104	108	18	36
65	Nagawa Shivatagundi	34F	92	43	44½	87½	43	17	13	48½	55	103½	59	17	20
66	Laxmavva Nazare	24F	79	13½	14½	28	22	18	6	..	..	..	..	..	..
67	Rindavva Gowdar	34F	96	52½	54½	107	38	20	30	50	56½	105½	88	20	28
68	Radhavva Malvade	18F	96	54½	55½	100	98	22	31	52½	55½	109	138	22	46
69	Savakka Hnnasyal	18F	92	69½	37	106½	71	20	20	43	50½	93½	67	20	22
70	Onkaravva Kundavagi	18F	90	38	39½	77½	51	18	15	48½	55	103½	88	18	27
71	Channavva Mudagal	26F	96	53	53½	100½	89	16	26	51	55½	106½	99	16	34
72	Neelovva Diwati	28F	99	53½	53½	107	48	16	15	45½	55	100½	70	16	23
73	Sumitra Sagar	18F	89	51½	55	106½	89	17	30	52½	56	108½	106	17	35

74	Janavva Keware	80	54	54½	108½	83	18	25	49	55½	104½	97	18	32
75	Annapurna Rittimath	84	46½	49	95½	46	16	15	45½	54½	100	61	16	20
76	Tulasavva Malawade.	60	50½	53½	104	78	16	24	51	53	104	87	18	29
77	Lilabai Tambe	93	52	55	107	92	18	28	50	55½	105½	109	18	35
78	Yasoda Diwate	92	45½	47½	93	77	16	24	52½	108½	108	100	18	30
79	Subbadra Atadakar	76	52	54½	106½	93	16	28	51	55½	106½	93	16	80
80	Shankarva Guttal	45	3	3½	6½	80	16	3	..	..	..	..	..	..
81	Subhdra Shelawadi	56	52	54½	106½	88	18	27	53	109	109	111	18	33
82	Alla Kamadolli	56	52	54	106	47	12	15	48	22½	70½	59	18	20
83	Yellavva Hanbal	54	46½	48	91	56	16	17	44½	54	109½	75	18	22
84	Laxmarva Hadagali	47	22½	23	45½	31	16	9	43½	54½	100	85	16	26
85	Kamalavva Bagade	52	46	45	91	54	16	16	47	50½	97½	67	16	23
86	Imambu Bepani	53	46½	48	94½	61	16	18	44½	53½	98	76	20	23
87	Marembu Nadaf	52	44	47½	91½	52	15	15	39½	52	90	55	18	16
88	Sitabai Kulkarni	48	29	30	59	31	16	10	43	52½	95½	65	16	15
89	Luxmibai Oujar	48	27	29½	56½	33	17	11	51	25	76	61	16	22
90	Kamatlabai Naik	41	23½	25	48½	23	16	8	38	43	81	54	17	16
91	Padmbai Patil	50	44	42½	86½	40	16	12	41½	28½	70	51	15	15
92	Ambutai Shirasangi	51	44	42	86	35	12	10	40	50	90	43	14	13
93	Talasakka Paste	49	39	40	79	38	15	12	47½	50	97½	58	16	17
94	Yellavva Pashupatil	34	41	38	79	56	16	17	51½	54	105½	90	18	27
95	Parvateva Atadekar	..	45	45½	90½	41	16	11	..	..	..	..	..	..
96	Padmabi Alur	49	44½	34	78½	60	16	19	25½	46½	72	51	20	15
97	Janakibai Hitnal	47	34½	34	68½	60	16	21	37	57½	94½	54	18	19
98	Veeravva Jalaji	46	23	32	60	29	16	10	47½	52	99½	49	18	15
99	Shantabai Kulkarni	49	46½	45½	92	51	15	15	41½	54	95½	64	19	19
100	Leelabai Mantar	48	30½	33½	64	24	17	8	45½	55	100½	37	20	12
101	Lalitabai Nelvagi	49	41½	44½	86	51	16	15	46	54½	100½	74	18	25
102	Parvateva Hosatti	47	45	47	92	60	17	18	31	36	67	50	18	17
103	Gowravva Maladar	45	47	43½	90½	31	15	9	37	41½	78½	34	1	11

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
104	Dyamavva Maladar	.	45½	4½	6½	11	4	12	1	..	..	..	..	..	..
105	Godavva Gural	.	42	42½	39	81½	39	15	12	43	49½	92½	50	20	12
106	Nadeema Nadaf	.	19	18	18	36	15	16	5	..	..	..	..	..	..
107	Shankutlabai Bandish	.	43	43	46	89	37	15	9	40	52	92	51	18	17
108	Sarujini Bijaur	.	..	..	..	..	..	..	..	..	..	..	..	..	..
109	Ranganath Tatti	.	..	..	77	142½	45	14	28	..	..	..	..	..	..
110	Seetavva Kosatti	.	..	..	..	..	..	..	..	..	..	..	..	..	..
111	Hanamanta Kulkarni	.	52	..	..	..	..	..	..	42½	49½	92	49	16	16
112	Gangavva Bagade	.	..	39½	38½	78	37	15	10	42½	54	96½	67	18	12
113	Krishinabai Joshi	.	37	42½	46	88½	44	16	25	38½	53	91½	52	20	81
114	Tulsibai Paribard	.	39	33½	41	74½	39	18	24	34	45	79	53	18	14
115	Fakam Kamadatti	.	35	39½	34½	74	26	19	10	37	46½	88½	37	16	10
TOTAL												9289	7097		

Name of Parishramalaya : Ambar Charkha Parishramalaya;
Anekal (Bangalore District)
KARNATAK

Serial No.	Name of operative	Class of operative	No. of days of attendance	From 10-3-1956 to 27-3-1956					From 28-3-1956 to 13-4-1956												
				Duration of work (Hours)		Pro-duction in hanks	Count of yarn spun	Waste in process (Tolas)	Duration of work (Hours)		Pro-duction in hanks	Count of yarn spun	Waste in process (Tolas)								
				Card- Spg.	Total hanks				Card- Spg.	Total hanks											
				Age-sex	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1.	Andalamma	.	.	.	.	.	.	38	.	.	.	.	.	.	.	.	.
2.	Prabhavatamma	.	.	.	.	.	.	74	19½	27	46½	22	10	38	17	20	37	9	8	.	.
3.	Veeramma	.	.	.	.	.	.	72	41	47	88	65	18	68	51	9½	60½	12	18	9	.
4.	Rudamma	.	.	.	.	.	.	72	41	47	88	64	18	65	5	9½	14½	12	20	7	.
5.	Kankanmma	.	.	.	.	.	.	87	41	42½	83½	37	13	47	37	40½	78½	45	20	22	.
6.	Srimathi	.	.	.	.	.	.	90	40½	42½	84½	44	16	51	38	41	79	42	16	36	.
7.	Sarojamma T. R.	.	.	.	.	.	.	93	26	43½	69½	43	11	31	20	32½	52½	46	15	15	.
8.	Kanalamma K.	.	.	.	.	.	.	90	26	43	69½	45	11	31	20	33	53	24	15	21	.
9.	Kamalakshmaa	.	.	.	.	.	.	72	43½	36½	80	38	13	49	33	39	72	36	17	28	.
10.	Indiramma	.	.	.	.	.	.	89	43½	36½	80	47	16	51	32	39½	72	38	16	30	.
11.	Jayamma T.	.	.	.	.	.	.	88	37½	42½	80	45	16	49	47	46	73	56	20	34	.
12.	Vasantamma P.	.	.	.	.	.	.	95	33	42½	80½	44	16	51	38	36	74	57	20	36	.
13.	Najamma	.	.	.	.	.	.	21	..	..	..	..	..	..	..	..	..	..	..	..	.
14.	Santamma	.	.	.	.	.	.	89	14½	52	66½	41	17	43	37½	40	77½	33	12	31	.

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
15.	Gouramma . . .	. 19 F	89	38½	41	79½	55	20	49	30	39	69	60	20	40
16.	Kankamma/Sushalamma . . .	. 18 F	91	39	41	80	53	20	44	30	39	69	53	20	32
17.	Lalitha . . .	. 35 F	21	..	..	..	..	..	..	..	..	..	..	..	..
18.	Venkatamma . . .	. 40 F	21	..	..	..	..	..	..	..	..	..	..	..	..
19.	Vishalakshamma A. V. . .	. 18 F	86	23	50	73	48	13	65	26½	34	60½	22	20	15
20.	Putalakshamma . . .	. 18 F	75	23	50	73	37	12	26	27	35	62	40	14	40
21.	Venkatamma S. . .	. 30 F	70	33	43	76	35	13	49	31	34½	65½	25	14	24
22.	Rajaamma K. . .	. 18 F	97	33½	43	76½	57	13	74	31	34½	65½	70	17	57
23.	Raggamma . . .	. 35 F	81	23	39	62	31	16	34	22½	29½	52	32	16	26
24.	Suramma . . .	. 40 F	83	23	39	62	39	13	49	22½	29½	52	31	19	21
25.	Darvatamma M. V. . .	. 35 F	88	15½	52	67½	34	16	37	37	40½	77½	35	16	30
26.	Venktrialkshmma . . .	. 35 F	21	..	..	..	..	..	..	..	..	..	..	..	..
27.	Ballamma . . .	. 20 F	7	..	..	..	..	..	..	..	..	..	..	..	..
28.	Yelamma . . .	. 19 F	71	34½	14½	49	16	16	16	..	..	..	..	..	..
29.	Tungamma . . .	. 20 F	77	28½	32½	61	34	16	38	24½	25½	50	16	16	14
30.	Lakshyamma . . .	. 20 F	85	29	32½	61½	45	16	38	24½	25½	50	34	14	32
31.	Saradamma . . .	. 22 F	71	45	14½	49½	40	16	15	24	22½	46½	43	15	37
32.	Papamma . . .	. 22 F	34	19½	27½	47	18	16	20	17	21	38	32	15	29
33.	Bokkamma G. . .	. 42	98	39	43	82	61	16	93	51½	34	85	54	20	37
34.	Ramaya N. . .	. 42 M	16	..	..	..	..	..	..	..	..	..	..	..	..
35.	Satyanarena P. . .	. 20 M	91	26	40½	66½	39	20	69	54	37½	97	77	20	55
36.	Sreenivasiah . . .	. 24 M	97	26	41	67	93	20	29	54	37½	91½	71	19	50
37.	Rajopalsharma . . .	. 22 M	8	..	..	..	..	..	..	..	..	..	..	..	..
38.	V. Harayan . . .	. 19 M	99	45½	44½	90	65	16	78	55	34	89	68	16	57
39.	A. V. Muniveerappa . . .	. 18 M	91	48½	43½	92	58	19	59	52½	31½	84	33	20	21
40.	S. Gopalkrishna . . .	. 19 M	55	41½	46	97½	68	20	65	10	6½	16½	18	12	16

41.	H. S. Satyanarayan	.	.	19M	7	..	44½	90	58	14	73	55	34	89	48	14	42
42.	Krishnappa Y. P.	.	.	18M	93	45½	31	39½	70½	46	13	56	58½	97	62	18	48
43.	Krishnaswamy C. S.	.	.	36M	86	31	39½	71½	9	10	15	..	..	..	..	..	..
44.	Jayaram	.	.	32M	71	31	39½	71½	9	10	15	..	..	..	..	..	..
45.	Bhavanishanka C. R.	.	.	40M	75	40	34½	74½	52	17	59	40	25½	65½	37	16	31
46.	Gururajao	.	.	18M	82	40	45	75	46	14	44	40	26	66	46	17	34
47.	Puttaiah C.K.	.	.	38M	19	..	..	..	..	..	..	..	..	..	..	..	..
48.	Shivamma K.P.	.	.	24F	19	..	..	..	..	..	..	..	..	..	..	..	..
49.	Rachappa B.	.	.	19M	76	39	43	82	60	19	109	51½	33	84½	64	20	47
50.	Krishnappa R.	.	.	20M	68	35½	32	67½	46	13	61	46	23	69	46	14	40
51.	Jailendra	.	.	18M	64½	35½	22½	56½	27	12	43	46	25	71	44	15	36
52.	Vishwakarma H.M.	.	.	32M	23	..	..	..	..	..	..	..	..	..	..	..	..
53.	Balkrishna T.	.	.	39M	23	..	..	..	..	..	..	..	..	..	..	..	..
54.	Venkatchoiah	.	.	24M	56	48½	43½	92	57	16	67	52½	31½	84	72	18	54
55.	H. S. Neelkantaiah	.	.	22M	48	54	47	101	60	19	74	64½	40½	105	62	18	51
56.	B. Sivanna	.	.	22M	49	54	47	101	59	19	74	64½	41	105½	62	18	51
57.	Narayanappa	.	.	22M	46	57½	45	102½	49	12	77	73	45	118	61	17	53
58.	Kamplingaya	.	.	20M	48	57	45	102	49	12	77	74	45	119	62	17	52
59.	Veerhaiah	.	.	40M	43	51½	41½	93	27	14	40	86½	40½	117	30	15	26
60.	Muniswamiya	.	.	20M	44	51½	42	93½	26	14	40	56½	31	87½	30	15	26
61.	A. Rahamtulla Sharaj	.	.	18M	40	52	49½	91½	30	13	43	52½	28½	81	37	18	29
62.	A. Sabjan	.	.	20M	8	..	..	..	..	..	..	..	..	..	..	..	..
63.	Daddannappa	.	.	18M	40	43	34½	77½	28	14	46	47½	25½	73	28	14	25
64.	Sarna Annappa	.	.	22	31	43	35	73	29	14	45	47½	25½	73	28	14	25
65.	Hajantulla Sharif	.	.	18M	40	57	47½	101½	50	16	73	66	46	102	51	15	46
66.	Banna	.	.	18M	40	57	67½	124½	50	16	73	57	37	94	51	15	46
67.	Bappa	.	.	18M	39	55	45	100	37	14	61	68	34	102	47	15	45
68.	Pattabhi	.	.	18M	36	55	44	99½	36	14	61	68	45	103	48	16	43
69.	Naujappa	.	.	18M	14	44	36	80	9	8	23	..	..	..	..	..	..
70.	Krishnappa T R.	.	.	18M	29	44	45½	79½	33	10	82	49½	13½	80	41	10	45

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
71. S. Ramamoorti	.	.	28	82	40	120	30	13	48	52½	29	81½	46	16	29
72. Jayamma	.	.	47	48	46	94	29	11	56	47	35	82	34	11	42
73. Sittamma	.	.	45	48	46	94	29	11	56	47	35	82	35	13	40
74. Venkatamma	.	.	46	44½	30½	65	19	11	40	45	42	87	30	10	43
75. Sittamma	.	.	35	34	30½	64½	18	10	40	45	42	87	29	10	42
76. Ponnatai	.	.	43	41½	34	75½	22	10	45	41	34	75	30	12	34
77. Jayamma R.	.	.	37	41½	34	75½	22	110	45	41	38	79	31	13	32
78. Srijamma	.	.	7	..	..	..	..	..	..	..	..	..	..	..	..
79. Kantamma	.	.	40	50	42½	92½	30	13	51	37½	34½	72	29	15	26
80. Ramakka	.	.	43	50	44	94	30	13	56	39	37½	76½	33	13	34
81. Akkajamma	.	.	39	50½	43½	94	29	13	54	39	37½	76½	31	13	34
82. Lalitamma	.	.	20	12	13½	26½	6	8	15	..	..	..	..	..	..
83. Lakshyamma	.	.	20	13	13½	26½	6	8	15	..	..	..	..	..	..
84. A. Chamma	.	.	9	..	..	..	..	..	..	..	..	..	..	..	..
85. Jayalakshyamma	.	.	40	46	40	86	22	10	45	49	43	92	31	8	40
86. Bharatamma	.	.	43	42	43½	85½	34	14	55	49	39½	88½	40	14	37
87. Subbaramma	.	.	38	42	43½	85½	33	14	55	47	39½	86½	38	15	37
88. Kaveramma	.	.	40	43½	37½	81	28	9	54	47	36½	80½	31	12	36
89. Santamma	.	.	35	50	42½	92½	29	13	48	34½	34½	79	28	14	25
90. Suselamma	.	.	34	43½	37½	81	29	13	51	37½	56½	94	32	13	35
91. Annaiyamma	.	.	17	20	18½	38½	12	8	33	..	..	..	..	..	..
92. Jahannussa	.	.	39	49½	18½	68	19	10	42	44½	49½	84	26	10	42
93. Zaharabi	.	.	29	49½	43	92½	19	10	42	44½	49½	94	24	10	44
94. Ranganima	.	.	37	46	43	89	23	11	46	49	43	92	31	10	40
95. Suselemma H.	.	.	5	20	40	16	..	..	..	44½	49½	84	..	..	..
TOTAL												5625	2890		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
17	Jayadev Beherai	.	.	19 M	40	64	64	128	16	13	17	44	88	17	13	15
18	Bishan Charan Pani	.	.	22 M	31	50	50	100	18	13	19	22	44	12	9	13
19	Bhabagrahi Sahu	.	.	28 M	17	22	22	44	5	13	7	..	..	..	..	..
20	Antarayani Sahu	.	.	22 M	46	62	62	124	37	15	40	68	136	57	17	49
21	Habakrishna Perida	.	.	42 M	11	..	..	..	..	..	..	..	..	..	..	..
22	Krishna Ch. Day	.	.	19 M	43	64	64	128	22	14	20	56	112	40	14	38
23	Gopal Ch. Sahu	.	.	18 M	14	56	56	112	16	13	16	..	..	..	..	..
24	Mana Gobini Parida	.	.	19 M	45	58	58	116	39	16	37	68	136	71	19	68
25	Damodar Parida	.	.	19 M	43	56	56	112	39	16	39	64	128	71	19	68
26	Prahallad Swain	.	.	23 M	46	64	64	128	45	16	40	68	136	60	17	55
27	Ganesh Ch. Parida	.	.	22 M	46	64	64	128	45	16	40	68	136	60	17	55
28	Gobind Ch. Sahu	.	.	25 M	45	64	64	128	37	17	35	64	128	56	16	53
29	Brindabhan Mohantray	.	.	21 M	46	62	62	124	37	17	34	68	136	53	16	50
30	Bhimeanan Sahu	.	.	18 M	16	24	24	48	5	15	8	..	..	..	..	..
31	Natbar Sahu	.	.	19 M	41	60	60	120	18	16	15	52	104	28	18	40
32	Shyan Sundar Bohra	.	.	30 M	45	62	62	124	28	15	34	64	128	41	16	35
33	Nrusingha Ch. Lanka	.	.	20 M	19	28	28	56	60	14	5	..	..	..	..	..
34	Binoygopal Das	.	.	15 M	46	64	64	128	35	17	34	68	136	48	16	42
35	Dharandhar Kabi	.	.	30 M	45	60	60	120	52	17	50	68	136	67	14	61
36	Ajodhya Dei	.	.	19 M	39	64	64	128	35	18	29	40	80	15	16	13
37	Narokrishna Patra	.	.	17 M	31	20	20	40	12	11	52	52	104	55	13	52
38	Gobind Sahu	.	.	21 M	45	62	62	124	17	14	14	66	132	43	15	40
39	Khiro Nath	.	.	19 M	41	46	46	92	18	12	15	64	128	95	12	94
40	Satyananda Hotta	.	.	27 M	35	28	28	56	7	12	14	58	116	53	15	50
41	Sachidannanda Sanal	.	.	23 M	19	28	28	56	8	14	7	..	..	..	..	..
42	Balaran Pande	.	.	20M	45	62	62	124	49	20	35	68	136	67	19	62

43	Mirslidhan Nayak	38	62	62	124	24	14	20	38	38	76	14	16	13
44	Delegobind Sahu	46	62	62	124	49	24	31	68	68	136	67	19	66
45	Murail Behore	38	62	62	124	28	14	25	38	38	76	21	14	18
46	Jogandra Sahu	30	60	60	120	38	14	38	40	40	80	21	15	17
47	Maghu Sahu	5	..	..	..	..	..	..	..	..	..	..	..	..
48	Mouranga Pande	8	..	..	..	..	..	..	..	..	..	..	..	..
49	Akuli Charan Jena	46	62	62	124	40	12	36	68	68	136	57	15	35
50	Smt. Janki Bewra	46	64	64	128	60	20	58	68	68	136	134	19	124
51	Adikanda Rout	17	16	16	32	4	12	5	..	..	..	..	..	..
52	Smt. S. Kunda	46	64	64	128	34	18	30	68	68	136	34	15	30
53	Smt. Surama Nath	46	64	64	128	54	17	53	68	68	136	75	18	70
54	Smt. Lakshmi Nath	46	64	64	128	54	17	32	68	68	136	75	18	74
55	Smt. Subhadra Devi	39	52	52	104	36	15	32	52	52	104	49	15	46
56	Smt. Dukhi Devi	46	64	64	128	33	14	33	68	68	136	32	14	30
57	Smt. Gurubari Devi	39	64	64	128	25	15	24	40	40	80	30	15	30
58	Smt. Ped Devi	46	64	64	128	29	12	26	68	68	136	43	14	41
59	Smt. Indumati Devi	46	64	64	128	29	12	26	68	68	136	43	14	41
60	Smt. Sasibala Devi	29	48	48	96	25	17	23	66	66	132	34	14	33
61	Smt. Sala Devi	15	8	8	16	5	14	9	..	..	..	..	..	..
62	Smt. Sita Devi	46	64	64	128	38	10	32	68	68	136	51	15	48
63	Smt. Rodani Dei	40	64	64	128	22	10	22	44	44	88	13	12	12
64	Smt. Sabitri Devi	47	64	64	128	45	15	20	68	68	136	64	16	20
65	Smt. Gita Devi	47	64	64	128	45	15	20	68	68	136	64	14	20
66	Smt. Susama Dei	47	64	64	128	39	15	20	68	68	136	58	15	20
67	Smt. Sakhi Dei	47	64	64	136	40	15	20	68	68	136	58	15	20
68	Smt. Dukhi Dei	47	64	64	136	39	13	20	68	68	136	55	14	20
69	Smt. Subhedra Dei	47	64	64	136	40	14	20	68	68	136	55	14	20
70	Smt. Malti Dei	27	52	25	104	18	13	10	..	..	..	..	..	..
71	Smt. Labani Dei	47	64	64	128	23	13	15	68	68	136	25	14	10

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
72	Smt. Sarojan Devi	.	.	15 F	32	60	60	120	25	13	15	68	68	136	31	14	15
73	Smt. Janhana Devi	.	.	35 F	47	64	64	128	25	13	15	68	68	136	36	15	15
74	Smt. Kanka Dei	.	.	40 F	47	64	64	128	27	14	15	68	68	136	35	15	15
75	Smt. Ujlani Dei	.	.	35 F	47	64	64	128	40	13	20	68	68	136	61	16	20
76	Smt. Sulokhana Dei	.	.	16 F	47	64	64	128	40	13	20	68	68	136	59	16	20
77	Smt. Panchai Dei	.	.	30 F	47	64	64	128	39	13	20	68	68	136	45	13	15
78	Smt. Shriomati Dei	.	.	48 F	44	64	64	128	38	13	20	64	64	128	45	13	15
79	Smt. Ananti Raut	.	.	42 F	47	64	64	128	38	13	20	68	68	136	49	13	15
80	Shri Surandra Ram	.	.	28 M	46	64	64	128	38	13	20	68	68	136	49	13	15
81	Shri Kularumi Sahu	.	.	28 M	45	58	59	116	48	13	20	68	68	136	64	13	20
82	Shri Nabikishore Sahu	.	.	22 M	46	64	54	128	45	12	20	68	68	136	63	13	20
83	Shri Prahlad Praik	.	.	22 M	45	60	60	120	27	13	15	64	64	128	61	14	20
84	Shri Sumakar Swain	.	.	25 M	46	64	64	128	28	13	15	68	68	136	59	14	20
85	Shri Golak Ch. Sahu	.	.	22 M	45	64	64	128	55	14	30	60	60	120	90	18	20
86	Shri Jaledhar Swain	.	.	21 M	44	64	64	128	55	14	30	60	60	120	88	16	30
87	Shri Arakhita Parida	.	.	21 M	46	60	60	120	33	14	15	66	66	132	59	15	20
88	Shri Jandharod Parida	.	.	20 M	41	62	62	124	33	14	15	68	68	136	54	13	20
89	Shri Sukh Dev Malik	.	.	32 M	47	64	64	128	48	19	20	68	68	136	79	20	15
90	Shri Dhurbe Ch. Biswal	.	.	23 M	47	64	64	128	18	19	20	68	68	136	81	20	25
91	Shri Kulamani Das	.	.	32 M	42	64	64	128	60	16	30	50	50	100	43	18	15
92	Shri Nityaranda Pandit	.	.	19 M	14	..	..	..	..	..	..	..	..	..	..	..	..
93	Shri Abhira, Menhantio	.	.	22 M	25	32	32	64	13	12	10	68	68	136	36	13	20
94	Shri Prahlad Malik	.	.	28 M	47	64	64	128	33	14	15	68	68	136	47	13	25
95	Shri Dhvani Malik	.	.	28 M	46	64	64	128	33	14	15	64	64	128	46	13	15
96	Shri B. Mahapatra	.	.	40 M	47	64	64	128	29	13	13	68	68	136	35	16	15
97	Shri Babaji Patra	.	.	30 M	43	64	64	128	23	13	15	52	52	104	28	13	15

98	Shri Anama Sahu	.	.	26	M	47	62	62	124	69	15	30	68	68	136	75	15	35
99	Shri Dalukishore M.	.	.	27	M	40	62	62	124	69	15	30	40	40	80	48	15	20
100	Shri Navakishore Barzi	.	.	18	M	47	62	62	124	31	12	15	68	68	136	47	13	20
101	Shri Bisutuma Jena	.	.	18	M	47	64	64	128	51	18	20	68	68	136	72	18	30
102	Shri Khobrabasi Sahu	.	.	36	M	46	64	64	128	51	18	20	68	68	136	74	19	30
103	Shri Lakmidhar Behari	.	.	26	M	44	62	62	124	32	13	20	58	59	116	63	11	45
104	Shri Purn Ch. Pande	.	.	26	M	46	58	58	116	33	16	15	68	68	136	69	16	30
105	Shri Raghunath Singh	.	.	25	M	47	62	62	124	42	15	20	68	68	136	69	18	30
106	Shri Gurcharan Nayak	.	.	23	M	39	60	60	120	31	12	20	40	40	80	14	14	20
107	Shri Pran Nath Kishore	.	.	33	M	47	62	62	124	43	16	20	68	68	126	84	14	30
108	Shri Parkhita Sabu	.	.	26	M	45	62	62	124	43	16	20	56	56	112	76	19	30
109	Shri Raghunath Swain	.	.	23	M	46	62	62	124	30	13	20	62	62	124	40	14	20
110	Shri Bhim Sen Patra	.	.	34	M	30	52	52	104	33	16	15	12	12	24	10	13	10
111	Shri Surjomni Sahu	.	.	21	M	45	60	60	120	30	13	20	68	68	13	40	12	25
112	Shri Rajkshore Jena	.	.	18	M	45	64	64	128	33	14	20	60	60	120	38	14	20
113	Shri Shamsurdar Sahu	.	.	19	M	45	60	60	120	33	14	20	62	62	124	38	14	20
114	Shri Madanmohan Samal	.	.	20	M	46	64	64	128	26	13	15	68	48	37	37	13	20
115	Shri Gurucharan Das	.	.	29	M	23	44	44	88	22	13	15	68	68	116	36	12	25
116	Shri Janoshwar Samal	.	.	27	M	26	24	24	8	25	15	10	28	28	56	54	14	25
117	Shri Pitambar mal	.	.	23	M	32	62	62	124	4	4	30	60	60	120	72	15	35
118	Shri Gopinath Mahantry	.	.	34	M	7	28	28	56	10	13	10	..	..	..	..	..	..
119	Shri Radha Mohan Mahantry	.	.	18	M	18	16	16	32	6	14	5	..	..	..	..	..	..
120	Shri Karunakar Parik	.	.	18	M	25	54	54	108	21	13	15	..	..	..	..	..	..
121	Shri Pardhan	.	.	38	M	45	60	60	120	26	13	15	69	68	136	38	13	20
122	Shri Suchdev Pethal	.	.	28	M	31	58	58	116	33	16	25	8	8	116	5	14	5

12730 5228

TOTAL

Date of Starting 1-2-56.
Number of Charkha Sets : 20.

Ambar Charkha Parishramalaya
Dighiri, P. O. Tangisahi, Dt. Puri, Orissa.
(Utkal)

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17	Gopinath T. Paikar	.	.	18 M	63	64	64	128	60	13	80	60	60	120	72	13	83
18	Nishakar Mishre	.	.	24 M	40	36	36	72	30	13	60	36	36	72	28	16	73
19	Hariram Jinnah	.	.	27 M	67	76	76	152	77	15	60	60	60	120	85	14	60
20	Rana Dei	.	.	13 M	63	76	76	152	64	18	64	60	60	120	54	12	50
21	Krishna Ch. Malli	.	.	29 M	55	52	52	104	45	13	45	60	60	120	80	18	70
22	Sachindra Malik	.	.	20 M	49	60	60	120	44	14	60	44	44	88	34	13	35
23	Jambeshwar Pradhan	.	.	21 M	62	72	72	144	74	14	74	60	60	120	70	14	74
24	Narayan Mishra	.	.	28 M	59	64	64	128	54	13	54	60	60	120	51	16	51
25	Yassoda Dei	.	.	14 M	61	76	76	152	64	18	64	60	60	120	49	16	41
26	Indu Dei	.	.	13 M	55	72	72	144	57	15	57	48	48	96	37	15	37
27	Aparati Malik	.	.	25 M	54	56	56	112	40	14	40	48	48	96	42	16	42
28	Amaulla Khan	.	.	20 M	52	56	56	112	48	11	56	52	52	104	50	16	50
29	Udayanath Sadepeeth	.	.	255 M	55	64	64	128	57	18	40	60	60	120	60	18	50
30	Naik unthanath Mohanthy	.	.	27 M	61	64	64	120	67	14	50	60	60	120	96	16	60
31	Maguni Swain	.	.	14 M	64	76	76	152	71	13	70	60	60	120	95	150	95
32	Paghnunath Swain	.	.	20 M	47	64	64	128	57	14	50	20	28	65	53	14	20
33	Achhay Bawa	.	.	28 M	62	68	68	136	59	6	60	60	60	120	40	16	40
34	Sappi Dei	.	.	17 M	62	68	68	136	59	14	60	60	60	120	40	16	30
35	Jahna Dei	.	.	15 M	51	74	70	144	57	15	57	48	48	96	37	15	37
36	Kunthla Dei	.	.	14 M	52	72	72	144	60	15	60	40	40	80	29	15	39
37	Kikamber Adhikaril	.	.	19 M	56	76	76	152	69	13	60	60	60	120	50	14	50
38	Hangopinda Nayak	.	.	22 M	51	52	52	104	39	13	48	60	60	120	31	31	47
39	Rajkishore Nayak	.	.	23 M	48	52	52	104	43	15	62	48	48	96	37	14	40
40	Budhu Dei	.	.	28 M	58	76	76	152	60	16	30	60	60	120	42	16	40
41	Duryodan Sahu	.	.	22 M	46	68	68	136	52	12	60	60	60	120	52	13	50
42	Sekh Raffudin	.	.	25 M	47	72	72	144	56	11	25	60	60	120	57	12	60
43	Sansari Sahu	.	.	20 M	380	48	48	96	37	12	60	56	56	112	43	14	40
44	Navakishore Pradhan	.	.	20 M	43	72	72	144	54	14	50	51	52	104	51	14	50
45	Hathu Bandhu Ditta	.	.	22 M	43	72	72	144	54	15	40	52	52	104	51	14	50

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
46	Jogendra Mahanty	.	24	68	68	136	46	13	46	60	60	120	72	13	72
47	Neelamani Nanda	.	33	52	52	104	34	12	34	40	40	80	20	20	26
48	Panchu Nayak	.	38	52	52	104	34	12	40	60	60	120	52	12	72
49	Raikishore Nishanka	.	35	52	52	104	35	13	30	60	60	120	52	14	31
50	Mathusudan Mahapatra	.	33	52	52	104	25	15	30	52	52	104	31	15	30
51	Panchanan Biswal	.	32	52	52	104	23	12	15	60	60	120	36	14	36
52	Narayan Sahu	.	34	64	64	128	24	13	35	60	60	120	49	14	50
53	Dukhyshyam Das	.	35	68	68	136	38	13	40	60	60	120	65	12	60
54	Chaturbhuj Nethi	.	35	60	60	120	33	11	33	60	60	120	44	12	44
55	Brahmanand Swain	.	35	68	68	136	35	11	34	60	60	120	51	11	50
56	Bharat Mansingh	.	38	72	72	144	44	12	44	52	52	104	40	40	40
57	Jagmohan Panda	.	38	68	68	136	32	13	32	60	120	30			
58	Poorna Ch. Malik	.	23	64	64	128	33		35	28	28	56	21	16	20
59	Sanathana Mohanthy	.	26	44	44	88	20	11	20	60	60	120	43	11	45
60	Poorna Ch. Sahu	.	25	40	40	80	20	12	20	60	60	120	46	12	50
TOTAL												6712	3488		

Name of Parishramalaya :

Orissa (State)

Date of starting 29-1-56

Number of Charkha Sets 18

From the 10th March 56 to 27th March 56

From 28th March 56 to 13th April 1956

S. No.	Name of Operative	Class of Spinner Age Sex	No. of days of attendance	Duration of work (Hours)			Duration of work (Hours)										Prodn. Count Tolas	Loss Tolas	Count Tolas	Loss Tolas
				Card- ing	Spin- ning	Total	Prodn. hanks	Count Tolas	Card- ing	Spinning	Total	Prodn. hanks	Count Tolas	Card- ing	Spinning	Total				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16					
1	Shri Ramachandra Sahu	26 M	61	52	52	104	54	17	58	56	56	112	104	19	43					
2	Shri Daifari Sahu	20 M	67	60	60	120	54	19	57	56	56	112	60	17	35					
3	Shri Haditbandhu Nayak	22 M	67	60	60	120	45	14	62	56	56	112	67	18	30					
4	Shri Abhiram Nayak	18 M	62½	50	50	100	44	18	54	52	52	104	62	19	24					
5	Shri Jaleshar Nayak	25 M	66	60	60	120	73	17	71	56	56	112	112	18	50					
6	Shri Shyamsundar Ghadai	35 M	60½	46	46	92	49	14	58	52	52	104	88	16	43					
7	Shri Khetramdhan Sethi	22 M	67	60	60	120	88	15	76	56	56	112	112	16	47					
8	Shri Chintamani Sia	23 M	65	52	52	104	45	14	57	56	56	112	64	18	30					
9	Shri Sachidananda Hati	21 M	62½	42	42	84	44	14	58	56	56	112	83	17	44					
10	Shri Purna Chandra Paoda	30 M	65½	58	58	116	60	21	55	56	56	112	76	20	37					
11	Shri Bhagaban Chandra Subla	26 M	66	58	58	116	78	20	63	56	56	112	90	20	37					
12	Shri Baikunthanath Misro	26 M	56	39	30	60	22	18	16	46	46	92	27	20	11					
13	Shri Narandra Padhi	33 M	66	58	58	116	67	19	40	56	56	112	96	20	48					
14	Shri Oborishau	28 M	65	52	52	104	65	19	29	56	56	112	89	18	48					

M. of Production.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
15	Shri Chindamani Biswal	. . .	23 M	67	60	60	120	87	15	54	56	56	112	112	51
16	Shri Sawarasan Panda	. . .	29 M	64	60	60	120	62	15	31	50	50	100	96	18 55
17	Shri Braundaban Gandhi	. . .	38 M	67	60	60	120	68	17	43	56	56	112	99	16 50
18	Shri Bhababinoda Samal	. . .	27 M	63	60	60	120	62	15	43	56	56	112	70	17 32
19	Shri Baidhal Samal	. . .	42 M	42	32	32	64	33	13	22	..	..	..	..	..
20	Shri Hari Samal	. . .	40 M	47	40	40	80	20	13	19	..	..	..	..	..
21	Shri Badmalochana Jena	. . .	35 M	67	60	60	120	91	16	53	56	56	112	112	19 53
22	Shri Mangalchand Das	. . .	20 M	46	56	56	112	39	16	32	..	..	..	..	..
23	Shri Baishanbe Ch. Das	. . .	42 M	41	12	12	24	10	16	15	..	..	..	..	..
24	Shri Bhaskar Das	. . .	22 M	62	60	60	120	42	16	26	44	44	88	47	16 27
25	Shri Govinda Das	. . .	20 M	23	..	..	..	..	..	..	..	..	..	..	..
26	Shri Ramchandaran Ghadai	. . .	30 M	65	60	60	120	49	27	27	48	58	96	59	16 30
27	Smt. Satyabhana Ghadai	. . .	50 F	66	56	56	112	44	18	28	56	56	112	49	18 28
28	Shri Anandi Chand Das	. . .	28 M	62	50	50	100	45	18	24	48	48	96	60	10 27
29	Shri Bansidhar Nayyar	. . .	30 M	27	..	..	..	..	..	..	..	..	..	..	..
30	Shri Mahindar Saurehua	. . .	24 M	64	56	56	112	52	16	26	56	56	112	76	17 37
31	Shri Krishna Chandra Das	. . .	24 M	64	52	52	104	47	20	16	56	56	112	56	19 24
32	Shri Govinda Chand Nayyar	. . .	24 M	64	60	60	120	56	16	28	52	52	104	52	18 25
33	Shri Laxmi Dhar Samal	. . .	26 M	58	60	60	120	47	15	30	22	22	44	13	16 9
34	Smt. Bhagratathi Root	. . .	21 F	66	60	60	120	89	19	29	56	56	112	151	22 58
35	Shri Ransidhar Ghadai	. . .	42 M	59	60	60	120	4	13	1	36	36	72	9	19 9
36	Shri Raghunath Rout	. . .	43 M	67	60	60	120	14	14	6	56	56	112	15	14 10
37	Shri Chhaka Das	. . .	40 M	47	40	40	80	19	14	6	..	..	..	..	..
38	Shri Krishna Chandar Pande	. . .	45 M	24	..	..	..	..	..	..	..	..	..	..	..
39	Shri Madhura Mohal Das	. . .	48 M	59	52	52	104	23	14	7	48	48	96	17	13 10
40	Shri Surendra Pr. Mohantriy	. . .	27 M	59	60	60	120	62	17	26	56	56	112	65	18 27

41	Shri Laxman Sahu	.	.	24 M	39	60	60	120	60	15	36	56	56	112	96	17	44
42	Shri Golau Nayak	.	.	24 M	40	56	56	112	45	17	25	56	56	112	56	18	25
43	Shri Bhikari Charan Das	.	.	22 M	41	60	60	120	34	16	22	56	56	112	54	17	24
44	Shri Gayadhar Ienka	.	.	21 M	41	60	60	120	33	16	21	56	56	112	54	17	25
45	Shri Khetraonau Khataua	.	.	25 M	25	36	36	72	14	16	14	56	56	112	50	17	27
46	Shri Maheshwar Pande	.	.	31 M	36	52	52	104	28	17	19	44	44	88	23	17	30
47	Shri Jai Krishan Tripathi	.	.	21 M	38	60	60	120	29	14	21	44	44	88	31	16	18
48	Shri Nabhari Pande	.	.	18 M	40	60	60	120	25	13	20	52	52	104	29	16	18
49	Shri Brundaban Pande	.	.	21 M	35	52	52	104	13	13	16	40	40	80	13	12	11
50	Shri Musa Das	.	.	30 M	39	60	60	120	47	12	21	48	48	96	52	12	38
51	Shri Arjun Ch. Das	.	.	29 M	41	60	60	120	37	13	25	56	56	112	49	14	31
52	Shri Ramchandar Rout	.	.	23 M	41	58	58	116	29	15	20	56	56	112	32	14	18
53	Shri Bhagwat Pr. Barik	.	.	20 M	41	60	60	120	28	15	11	56	56	112	60	20	28
54	Shri Laxmidhar Maghi	.	.	20 M	58	60	60	120	41	14	26	48	48	96	39	18	25
55	Shri Surendar Das	.	.	23 M	41	60	60	120	43	13	32	56	56	112	46	16	38
56	Shri Daitari Katua	.	.	26 M	25	52	52	104	24	13	20	..	..	..	..	..	..
57	Shri Varahmaunda Pande	.	.	22 M	38	52	52	104	31	15	22	52	52	104	40	17	26
58	Shri Narsingh Ch. Behra	.	.	19 M	33	32	32	64	13	13	6	52	52	104	34	14	20
59	Shri Bayanaku Vegera	.	.	25 M	12	4	4	8	1	10	11	..	..	..	..	..	..
60	Shri Maniphadra Mohantray	.	.	28 M	40	56	56	112	41	19	23	56	56	112	84	20	27
61	Smt. Uma Devi	.	.	42 F	39	50	50	100	26	13	21	56	56	112	30	14	30
62	Smt. Nayana Dei	.	.	27 F	39	60	60	120	41	12	25	56	56	112	74	13	43
63	Smt. Hara Dei	.	.	40 F	39	60	60	120	35	16	23	56	56	112	39	14	26
64	Smt. Kant Nayak	.	.	15 F	30	60	60	120	47	14	27	56	56	112	48	16	22
65	Smt. Chemi Navak	.	.	41 F	22	44	44	88	14	16	16	44	44	88	16	13	33
66	Smt. Ananta Mohantray	.	.	22 F	22	40	40	80	14	16	17	48	48	96	28	15	24
67	Shri Govind Chadr Kar	.	.	27 M	19	20	20	40	4	15	13	56	56	112	56	19	28

5950 3427

TOTAL

Name of Parishramalsaya : BEGUNAYA PADAP

ORISSA(Utkal).

Number of Charkha Sets 45

S. No.	Name of Operative	Class of spinner.	No. of days of attendance	From 10th March, 56 to 27th March, 56											From 28th March, 56 to 13th April, 56																
				Duration of work (Hours)						Loss					Duration of work (Hours)						Loss										
				Card- ing	Spg.	Total	Prodn. hanks	Count	Tolas	Card- ing	Spg.	Total	Prodn. hanks	Count	Tolas	Card- ing	Spg.	Total	Prodn. hanks	Count	Tolas										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
1	Padamabhave Misro .	. 25 M	59	60	60	120	58	14	25	60	60	120	47	16	20	2	Vaidyanath Panigbaree .	. 28 M	53	60	60	120	57	16	45	56	56	112	47	14	35
3	Banchhamdhi Mahanty .	. 20 M	55	60	60	120	51	12	38	44	44	88	37	13	27	4	Shittranjan Pradhan .	. 20 M	37	32	32	64	29	14	22	40	40	80	32	15	34
5	K. Rajandar Prasad Patno .	. 30 M	53	60	60	120	55	17	40	56	56	112	49	14	36	6	Raghunath Pattnagar .	. 30 M	55	60	60	120	50	16	36	52	52	104	50	16	36
7	Ananto Patno .	. 22 M	38	48	48	96	36	14	27	40	40	80	30	14	22	8	Raghuba Pattnayak .	. 30 M	56	60	60	120	64	14	48	48	96	53	14	40	10
9	Appana Ganpayat .	. 20 M	30	28	28	56	21	14	16	40	40	80	13	13	10	10	Biprabandhu Behara .	. 28 M	50	60	60	120	52	16	40	48	48	96	44	17	30
11	Lakhane Mahanty .	. 22 M	48	48	48	96	40	17	30	52	52	104	36	17	24	12	Raghunath Patno .	. 22 M	55	52	52	104	45	15	24	68	68	136	60	19	40
13	Bhanhagrahi Sakon .	. 22 M	51	48	48	96	41	16	30	60	60	120	53	14	40	14	Judhistar Swamy .	. 22 M	51	32	32	64	29	13	20	64	64	128	64	13	50
15	Aktual Gonde .	. 20 M	49	44	44	88	34	16	25	60	60	120	41	16	50																

Sl. No.	Name	Age	35	24	24	48	16	15	10	28	28	56	25	13	20
17	Kritan Swin	25 M	53	48	48	96	41	13	30	52	52	104	50	16	40
18	Barchanadhi Tripathi	25 M	52	44	44	88	39	15	30	56	56	112	54	16	40
19	Kanaraja Patno	20 M	58	52	52	104	60	20	45	72	72	144	68	17	40
20	Goutohari Sahon	22 M	54	60	60	120	52	14	40	64	64	128	56	13	46
21	Abhumanu Sahon	20 M	35	60	60	120	41	15	30	64	64	128	50	17	40
22	Dandipani Sahon	20 M	56												
23	Ramah Chandar Milaro	22 M	34	60	60	120	48	15	36	64	64	128	55		
24	Hira Devi.	30 F	24	36	60	72	34	13	25	32	32	64	77		
25	Dhobay Devi	28 F	42	32	32	64	31	13	15	32	32	64	18		
26	Labanyubati Devi	25 F	39	40	40	80	37	16	30	40	40	80			
27	Savatri Devi	..	..										
28	Sakuntala Devi	..	..										
29	Chhan Nayak	..	..										
30	Bhismadeva Panda	..	..										
31	Sanyasi Reddy	30 M	37	44	44	88	31	18	20	..	..	..	..	..	..
32	Sabti Pallai	22 M	15	24	24	48	16	15	14	..	..	..	..	..	..
33	K. Bhimaya Patno	35 M	27	36	36	72	28	13	20	36	36	72	28	19	20
34	Malu Patno	22 M	36	36	36	72	28	13	20	52	52	104	40	18	30
35	Bhimasano Pradhan	30 M	36	52	52	104	48	13	35	56	56	112	50	14	40
36	Dandapani Pradhan	22 M	36	44	44	88	39	19	30	36	36	72	33	19	20
37	Bhobani Jana	25 M	36	38	48	96	38	17	25	30	40	80	31	18	20
38	Khali Sahon	25 M	43	60	60	120	49	16	40	52	52	104	48	18	35
39	Ajaram Pama	20 M	33	40	40	80	30	15	20	36	36	72	27	12	20
40	Mihinacharan J. Nayak	30 M	36	40	40	80	28	12	20	68	68	136	44	11	30
41	Sadashiva Patno	25 M	28	40	40	80	32	12	25	36	36	72	27	15	20
42	Jityanando Patno	25 M	27	40	40	80	89	12	20	32	32	64	27	15	20
43	Gadadhano Behara	30 M	38	60	60	120	56	15	40	56	56	112	51	14	35
44	Syamo Sundar Patno	20 M	38	60	60	120	46	15	30	56	56	112	48	14	35
45	Brundaban Patna (A).	25 M	40	60	60	120	43	14	25	64	64	128	50	14	35

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
46	Badhi Behra	.	41	60	60	120	52	13	35	68	68	136	60	15	45
47	Raghnath Sahoo	.	29	48	48	96	23	12	15	40	49	80	29	12	20
48	Brundaban Patna (B)	.	26	40	40	80	25	13	20	32	52	64	24	13	15
49	Bh. Vankat Ratna	.	18	28	28	56	12	13	10	24	24	48	22	14	15
50	Govind Ch. Pati	.	35	60	60	120	33	15	25	60	60	120	44	16	30
51	Mratunjaya Satpata	.	24	48	48	96	14	13	10	44	44	88	23	12	15
52	Kasinath Dakna	.	32	56	56	112	37	13	30	60	60	120	48	13	35
53	Jaganath Patna	.	34	56	56	112	31	13	20	64	64	128	47	13	35
54	Trilochand Doe	.	27	44	44	88	24	12	15	48	48	96	33	18	25
55	Ramchandar Behara	.	7	12	12	24	3	16	5	16	16	32	21	13	15
56	Udayanath Hoth	.	26	40	40	80	18	13	15	64	64	128	58	14	40
57	Dandapani Panda	.	23	44	44	88	14	12	14	48	48	96	28	14	20
58	A. Amai Bewa	.	71	80	80	160	103	18	40	68	68	136	116	20	40
59	Puni Bewa	.	71	80	80	160	93	18	66	68	68	136	77	20	60
60	Guruhari Beharani	.	70	78	78	156	59	12	30	64	64	128	64	14	24
61	Subhadra Devi	.	69	80	80	160	58	14	40	68	68	136	56	14	47
62	Malti Devi (A)	.	71	80	80	160	48	13	30	68	68	136	56	14	23
63	Malati Devi (B)	.	71	80	80	170	75	13	40	68	68	136	67	15	40
64	Subarna Devi	.	70	76	76	152	69	15	40	58	68	136	75	19	26
65	Dhukhi Devi	.	71	80	80	160	65	14	20	68	68	136	75	18	17
66	Padma Bewa	.	70	80	80	160	52	13	10	64	64	128	51	16	10
67	Satyabhama Bewa	.	71	80	80	160	52	12	15	68	68	136	49	14	13
68	Barjabandhu Besai	.	57	34	34	68	18	13	13	56	56	112	34	16	10
69	Udayanath Panigrahi	.	67	70	70	140	45	14	40	62	62	124	51	18	21
70	Satrugnan Nayak	.	68	72	72	144	56	11	13	64	64	128	55	13	30
71	Brinadaban Nayak	.	67	68	68	136	37	12	13	64	64	128	45	13	30

72	Kripasindhu Panigrahi	.	.	26 M	67	72	72	144	40	10	25	60	60	120	35	12	22
73	Laxman Nair	.	.	28 M	63	74	74	148	43	12	24	40	40	80	30	14	20
74	Buri Dakna	.	.	20 M	64	76	76	152	42	10	24	46	46	92	29	12	20
75	Raghu Dakna	.	.	19 M	54	60	60	120	35	12	22	20	20	40	8	30	5
76	Sashibhusan Vesoi	.	.	25 M	63	70	70	140	33	11	22	60	60	120	30	15	20
77	Atkanda Basai	.	.	23 M	70	78	78	156	38	13	35	66	66	132	34	15	22
78	Udayanath Beharai	.	.	22 M	70	78	78	156	73	15	45	64	64	128	78	12	50
79	K. Balram Patra	.	.	24 M	41	54	54	108	..	..	..	..	..	..	..	..	..
79A	Balakrishna Panigrahi	.	.	22 M	66	76	76	152	75	12	45	52	52	104	66	18	14
80	K. Balram Paigra	.	.	24 M	41	54	54	108	14	12	10	..	..	..	..	..	..
81	Ghana Behra	.	.	30 M	65	76	76	152	28	14	18	48	48	96	31	12	20
82	Bhima Nayak	.	.	21 M	65	76	76	158	34	15	32	46	46	92	29	14	20
83	Raghu Nath Swin	.	.	26 M	64	76	76	162	63	15	40	44	44	88	29	16	20
84	Siva Dakna	.	.	29 M	70	80	80	160	65	15	40	64	64	128	55	16	35
85	Khali Maharama	.	.	25 M	68	74	74	148	64	14	40	64	64	128	65	13	40
86	Magaya Sahoo	.	.	32 M	66	70	70	140	56	14	35	56	56	112	44	11	35
87	Solia Nayak	.	.	27 M	61	46	46	92	32	15	20	64	64	120	45	13	35
88	Shri Hakash Nayak	.	.	28 M	70	76	76	152	80	12	50	68	68	136	77	15	48
89	Satyawadi Acharya	.	.	31 M	68	72	72	144	79	13	50	68	68	136	80	14	50
90	Ganesh Reth (A)	.	.	32 M	57	80	80	160	47	11	30	64	64	128	48	14	30
91	Ganesh Reth (B)	.	.	26 M	59	80	80	160	51	30	68	68	68	136	52	17	30
92	Digambar Reth	.	.	25 M	57	76	76	152	64	12	40	64	64	128	61	16	35
93	Kiabore Chandra Reth	.	.	27 M	59	80	80	160	40	15	20	68	68	136	61	17	35
94	Krishna Ch. Panda	.	.	27 M	52	70	70	140	25	17	15	60	60	120	38	15	25
95	Binayak Mishra	.	.	20 M	59	80	80	160	26	16	15	68	68	136	40	13	25
96	Tateswar Rath	.	.	28 M	54	72	72	144	47	13	30	56	56	112	50	15	30
97	Purna C. Acharya	.	.	23 M	58	76	76	152	47	15	30	68	68	130	58	16	30
98	Devaraja Rath	.	.	34 M	58	74	74	148	18	17	32	68	68	136	41	16	25
99	Denidar Reth	.	.	26 M	56	74	74	148	45	14	30	60	60	120	48	18	30
100	Sarat Ch. Rath	.	.	25 M	45	52	52	104	21	15	14	68	68	136	67	15	24

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
101	Ramesh Ch. Pattanak	.	55	68	68	136	28	13	25	68	68	136	41	17	25
102	Sadasiva Satpaty	.	46	56	56	112	30	20	25	44	44	88	44	21	25
103	Balkrishana Satpaty	.	54	76	76	152	50	19	30	54	54	108	51	15	30
104	Manguli Satapaty	.	47	54	54	108	17	12	12	44	44	88	24	16	15
105	Bainidhar Satpaty	.	47	62	62	124	20	13	15	44	44	88	23	14	15
106	Sonnath Shoo	.	55	68	68	136	53	16	30	58	58	116	50	17	30
107	Jagannath Bisoi	.	52	76	76	152	52	18	40	62	62	124	53	19	30
108	Purna Ch. Nayak	.	56	74	74	148	41	12	25	60	60	120	54	17	35
109	Binyak Parigarh	.	55	64	64	128	37	11	25	66	66	132	54	15	35
110	Ghansham Pande	.	49	58	58	116	42	12	30	60	60	120	51	15	30
111	Jagannath Panigrah	.	55	74	74	148	54	12	30	64	64	128	52	16	30
112	Rangwati Devi	.	59	80	80	160	35	11	22	68	68	136	46	15	30
113	Sulluna Devi	.	59	80	80	160	34	13	25	68	68	136	49	16	30
114	Mitka Devi	.	58	78	78	156	49	13	30	66	66	132	58	15	35
115	Api Devi	.	59	80	80	160	50	15	30	68	68	136	61	15	35
116	Babeji Panigrahi	.	28	48	48	96	20	17	15	64	64	128	54	18	30
117	Panchu Pradharn	.	28	48	48	96	26	13	15	64	64	128	54	17	30

TOTAL

12,614 5,302

Date of starting : 19-1-56

Name of Parishramalaya : Raipur Maniharam (Gujarat)

No. of Charkha sets : 19

S. No.	Name of operative	Class of Spinner	No. of days of Trg.	From 10th March 56 to 27th March, 56								From 28th March to 13th April, 56							
				Duration of work (Hours)								Duration of work (Hours)							
				Car- ding	Spg.	Total Prodn. hanks	Count tolas	Car- ding	Spg.	Total Prodn. hanks	Count tolas	Car- ding	Spg.	Total Prodn. hanks	Count tolas				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
1	Feluramji	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	Janeshwarprasad	.	.	.	20 M	.	70	36	36	72	51	13	12	52	104	59	12	10	
3	Sarchand	.	.	.	23 M	.	64	28	28	56	54	14	10	61	59	120	129	13	25
4	Ambicapradasinh	.	.	.	20 M	.	72	60	60	120	155	14	35	61	59	120	150	14	25
5	Rajendra Kumar	.	.	.	19 M	.	72	60	60	120	93	93	22	60	57	117	97	13	15
6	Gangacharan	.	.	.	20 M	.	62	24	24	48	37	14	5	40	40	80	72	14	12
7	Shambhulal	.	.	.	23 M	.	65	60	60	120	77	15	16	29	29	58	52	13	7
8	Sukhvirsinh	.	.	.	20 M	.	76	60	60	120	105	13	30	52	56	108	104	14	20
9	Madanlal	.	.	.	20 M	.	74	60	60	120	105	13	30	48	52	100	101	18	20
10	Jaibhagvan	.	.	.	20 M	.	75	60	60	120	72	13	15	60	60	120	85	13	20
11	Vedpal	.	.	.	20 M	.	63	28	28	56	30	12	5	48	48	96	64	13	15
12	Rameshwarprasad	.	.	.	20 M	.	61	60	60	120	79	13	25	52	52	104	70	13	61
13	Kashiram	.	.	.	20 M	.	75	60	60	120	72	14	15	56	56	112	66	12	10
14	Hukumsinh	.	.	.	20 M	.	62	24	24	48	44	15	10	44	48	92	75	14	10
15	Nathiram	.	.	.	20 M	.	62	20	20	40	40	14	5	44	44	88	67	14	12
16	Naktisinh	.	.	.	22 M	.	64	60	60	120	57	12	15	20	20	40	21	12	7
17	Chandramasinh	.	.	.	30 M	.	64	60	60	120	125	16	25	60	58	118	115	15	3
18	Shrinivasram	.	.	.	22 M	.	76	60	60	120	29	12	20	60	56	116	104	13	15
		.	.	.	20 M	.	71	60	60	120	95	13	22	60	55	115	101	12	16

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
18	Maujulben Bhudardas	16	82	4	4	8	32	20	18	4	4	8	7	20	3½
19	Vimalaben Bhudardas	18	72	4	4	8	44	20	24½	4	4	8	81	20	40½
20	Madhuben Kankuben	20	82	4	4	8	62	20	35	4	4	8	78	22	39
21	Paniben Pitamberdas	34	62	4	4	8	27	18	22	4	4	8	..	..	..
22	Narbdaben Savjibhai	18	44	4	4	8	..	..	..	4	4	8	..	..	..
23	Kashiben Motibhai	18	43	4	4	8	..	..	..	4	4	8	..	..	..
24	Kantaben Vallabhabhai	18	2	4	4	8	..	..	..	4	4	8	..	..	..
25	Narbdaben Huberdas	18	43	4	4	8	..	..	..	4	4	8	..	..	..
26	Beniben Muljibhai	18	43	4	4	8	..	..	..	4	4	8	..	..	..
27	Punamben Hariprasad	18	85	4	4	8	36	22	20	4	4	8	106	22	53
28	Daniben Bhagwandas	22	76	4	4	8	..	20	14½	4	4	8	39	20	19½
29	Gomtiben Trikamlal	40	81	4	4	8	6	20	3½	4	4	8	18	20	8½
30	Narbdaben Mohanlal	16	82	4	4	8	64	20	19	4	4	8	49	24	24½
31	Punjiben Vadilal	18	27	4	4	8	94	20	47	4	4	8	28	22	14
32	Hiraben Shamji	16	9	4	4	8	..	..	..	4	4	8	..	..	..
33	Rajiben Keshavlal	16	4	4	4	8	..	..	..	4	4	8	..	..	..
34	Shantaben Navinchandra	24	85	4	4	8	23	20	11½	4	4	8	65	22	32½
35	Shantan	20	85	4	4	8	50	22	25	4	4	8	110	20	55
36	Chaturiben Chaganlal	18	85	4	4	8	50	22	25	4	4	8	57	22	88
37	Shantaben Prabhashanker	16	84	4	4	8	69	20	34½	4	4	8	62	20	31
38	Kamalaben Nathalal	24	81	4	4	8	51	22	25½	4	4	8	65	22	32½
39	Champaben Ambalal	20	26	4	4	8	..	..	..	4	4	8	..	..	..
40	Rambhaben Tolji	22	68	4	4	8	70	18	8½	4	4	8	101	20	50
41	Fatmaben Lalkha	20	85	4	4	8	32	20	16	4	4	8	119	22	50
42	Madhukanta Lalubhai	20	27	4	4	8	..	..	..	4	4	8	..	..	..
43	Jasmatiben Jivanlal	28	43	4	4	8	..	..	..	4	4	8	140	..	..
44	Taraben Bhagwandas	28	74	4	4	8	31	20	15½	4	4	8	110	22	50

45	Gangaben Kidubhai	.	.	20	84	4	4	8	55	20	27½	4	4	8	72	22	35
46	Baluben Viraji	.	.	20	85	4	4	8	40	20	20½	4	4	8	107	21	53
47	Rupaben Amarsingh	.	.	22	83	4	4	8	35	22	12½	4	4	8	171	20	55
48	Nandaben Talsi	.	.	22	83	4	4	8	51	20	25½	4	4	8	97	18	42
49	Shri Sitaben Joradas	.	.	30	83	4	4	8	26	20	13	4	4	8	145	20	42
50	Jasodaben Parsottamdas	.	.	22	37	4	4	8	..	..	..	4	4	8	..	..	..
51	Svitaben Amratlal	.	.	30	72	4	4	8	50	20	25	4	4	8	75	22	18
52	Soniben Bhudardas	.	.	30	81	4	4	8	57	20	28½	4	4	8	84	20	42
53	Maniben Punamchand	.	.	32	39	4	4	8	..	..	..	4	4	8	..	..	..
54	Gangaben Mithuben	.	.	32	70	4	4	8	39	18	19½	4	4	8	154	20	77
55	Manguben Manilal	.	.	22	75	4	4	8	44	22	22	4	4	8	138	20	69
56	Divaben Maniben	.	.	34	69	4	4	8	23	18	11½	4	4	8	186	20	34
57	Savitaben Pitamberdas	.	.	22	75	4	4	8	33	20	16½	4	4	8	138	20	69
58	Laxmiben Revabhai	.	.	20	62	4	4	8	28	..	14	4	4	8	153	20	51
59	Manguben Mafatal	.	.	16	71	4	4	8	64	18	32	4	4	8	106	18	53
60	Retanben Amrabhai	.	.	28	82	4	4	8	21	14	10½	4	4	8	51	16	2½
61	Kalavatiaben Govindbhai	.	.	16	82	4	4	8	53	16	26½	4	4	8	115	16	56½
62	Kapilaben Jivraj	.	.	16	81	4	4	8	73	18	38	4	4	8	88	18	44
63	Shantaben Samuben	.	.	18	82	4	4	8	98	16	39	4	4	8	59	16	29½
64	Samuben Virabhai	.	.	32	81	4	4	8	..	..	..	4	4	8	1	18	42
65	Shantaben Kanjibhai	.	.	18	69	4	4	8	24	18	12	4	4	8	168	18	84
66	Jadiben Bhanabhai	.	.	16	83	4	4	..	44	16	22	4	4	8	45	16	22½
67	Chanchaliben Mangubhai	.	.	18	9	4	4	8	..	..	..	4	4	8	..	..	..
68	Revaben Somabhai	.	.	34	64	4	4	8	79	14	39½	4	4	8	59	18	29
69	Sushilaben Babulal	.	.	22	65	4	4	8	64	20	32	4	4	8	115	20	57½
70	Jiviben Valiben	.	.	20	7	4	4	8	..	..	..	4	4	8	..	..	..
71	Savitaben Khodabhai	.	.	24	37	4	4	8	..	..	..	4	4	8	..	..	..
72	Gomtiben Punjabhai	.	.	35	82	4	4	8	105	18	52½	4	4	8	67	20	35
73	Mithiben Paniben	.	.	30	7	4	4	8	..	..	..	4	4	8	..	..	..

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
74	Khaniben Jugaldas	34	11	4	4	8	..	..	..	4	4	8	..	..	..
75	Dahiben Revaben	16	29	4	4	8	..	..	..	4	4	8	..	..	..
76	Daniben Kankuben	18	33	4	4	8	..	..	..	4	4	8	..	..	..
77	Maniben Gagaben	24	42	4	4	8	..	..	..	4	4	8	..	..	..
78	Manguben Jivaben	28	74	4	4	8	84	18	42	4	4	8	78	16	39
79	Punjaben Jivabhai	26	64	4	4	8	74	20	37	4	4	8	60	16	31
80	Nanduben Gandabhai	18	10	4	4	8	..	..	..	4	4	8	..	..	..
81	Shantaben Maniben	24	26	4	4	8	..	..	..	4	4	8	..	..	..
82	Laxmiben Hirabhai	32	79	4	4	8	48	18	24	4	4	8	47	18	23½
83	Babuben Dahiben	30	80	4	4	8	68	16	33	4	4	8	112	16	56
84	Vanilaben Jayprasad	22	28	4	4	8	..	..	..	4	4	8	..	..	..
85	Prabhavatiben C	18	17	4	4	8	..	..	..	4	4	8	..	..	..
86	Ramiben Sunderben	34	79	4	4	8	89	16	44½	4	4	8	97	16	48½
87	Dahiben Somabhai	16	82	4	4	8	52	18	26	4	4	8	113	18	56½
88	Ichaben Devabhai	30	2	4	4	8	..	..	..	4	4	8	8	16	4
89	Harkhaben Hematsing	35	28	4	4	8	..	..	..	4	4	8	11	16	5½
90	Naniba Hematsing	30	21	4	4	8	32	18	16	4	4	8	24	18	12
91	Kesharben Narthubhai	18	25	4	4	8	20	16	10½	4	4	8	..	..	..
92	Gangaben Dhyabhai	32	73	4	4	8	105	20	52½	4	4	8	79	18	39½
93	Champaben Pursottamdas	22	56	4	4	8	45	18	22½	4	4	8	152	16	66
94	Gomtaben Gigabhai	34	65	4	4	8	82	18	41	4	4	8	86	18	43
TOTAL												752 4,632			

Name of Parishramalaya : Mahipatram Rupram Ananthashram
Outside Raipur Gate, Ahmedabad.

S. No.	Name of Operative	Class of spinner	No. of days of Trg.	Age	From 10th March, 56 to 27th March, 56					From 28th March to 13th April, 1956					
					Duration of work (Hours)					Duration of work (Hours)					
					Card- ing	Spg.	Total Prodn. hanks	Count	Loss Tolas	Card- ing	Spg.	Total Prodn. hanks	Count	Loss Tolas	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Bhaniben Ramjibhai	.	25	2	2	4	..	..	..	2	2	4	..	..	..
2	Ratanben Lallubhai	.	30	2	2	4	..	..	..	2	2	4	..	..	..
3	Mithiben Ramjibhai	.	24	2	2	4	37	16	23½	2	2	4	39	18	17
4	Dhaniben Chaganlal	.	22	2	2	4	55	18	31	2	2	4	21	18	9½
5	Devindra Jannadas	.	20	2	2	4	..	..	..	2	2	4	..	..	..
6	Shantaben Maneklal	.	24	2	2	4	..	..	..	2	2	4	..	..	..
7	Harshaben Jayprasad	.	20	2	2	4	..	..	..	2	2	4	..	..	..
8	Maniben Shantilal	.	30	2	2	4	42	17	21	2	2	4	43	17	18½
9	Hiraben Naranlal	.	30	2	2	4	..	..	..	2	2	4	..	..	..
10	Baluben Ramjibhai	.	20	2	2	4	..	..	..	2	2	4	..	..	..
11	Shantaben Madhavlal	.	18	2	2	4	..	..	..	2	2	4	..	..	..
12	Prabhaben Hargovind	.	18	2	2	4	..	..	..	2	2	4	..	..	..
13	Dayaben Kanubhai	.	24	2	2	4	44	17	32½	2	2	4	54	20	23½
14	Parvatiben Nathalal	.	22	2	2	4	..	..	..	2	2	4	..	..	..
15	Nandakini Pratapbhai	.	28	2	2	4	..	..	..	2	2	4	..	..	..
16	Lakhuben Oghadbhai	.	32	2	2	4	..	..	..	2	2	4	..	..	..
17	Shardaben Ratilal	.	18	2	2	4	..	..	..	2	2	4	..	..	..
18	Sudhaben Maneklal	.	14	2	2	4	36	16	17½	2	2	4	25	19	11

t	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
19	Phanumatiben Ramesh	.	20	74	2	2	4	31	16	15½	2	2	4	86	20	37½
20	Kumudben Ramamlal	.	26	70	2	2	4	24	17	22	2	2	4	62	20	27
21	Nilaben Ramanlal	.	22	69	2	2	4	21	17	19½	2	2	4	69	20	30½
22	Sitaben Kuberdas	.	35	71	2	2	4	48	18	24	2	2	4	61	19	26½
23	Taraben Parsotamdas	.	24	9	2	2	4	..	..	..	2	2	4	..	..	..
24	Savitaben Maganlal	.	28	8	2	2	4	..	..	..	2	2	4	..	..	..
25	Santaben Maganlal	.	28	32	2	2	4	..	..	..	2	2	4	..	..	..
26	Kamalaben Atmaram	.	28	68	2	2	4	30	20	15	2	2	4	62	18	27
27	Kantaben Bhagwandas	.	24	2	2	2	4	..	..	..	2	2	4	..	..	..
28	Sitaben Shantilal	.	40	69	2	2	4	44	18	32½	2	2	4	65	19	28½
29	Sushilaben Naranbhai	.	22	68	2	2	4	46	19	23½	2	2	4	36	20	15½
30	Pravatiben Laljibhai	.	23	13	2	2	4	..	..	..	2	2	4	..	..	..
31	Somiben Chandulal	.	30	72	2	2	4	44	19	32½	2	2	4	39	20	19
32	Manjulaben Shantilal	.	22	12	2	2	4	..	..	..	2	2	4	..	..	..
33	Vinodaben Chandrakant	.	30	40	2	2	4	..	..	..	2	2	4	..	..	..
34	Chanchalben Meghji	.	32	13	2	2	4	..	..	..	2	2	4	..	..	..
35	Sarojiben Gordhandas	.	22	11	2	2	4	..	..	..	2	2	4	..	..	..
36	Vinayabala Chandrakant	.	28	8	2	2	4	..	..	..	2	2	4	..	..	..
37	Shardaben Shantilal	.	24	10	2	2	4	..	..	..	2	2	4	96	19	42
38	Pushpaben Pursotamdas	.	22	63	2	2	4	19	16	4½	2	2	4	..	..	..
39	Sunandaben Zankhibhai	.	18	13	2	2	4	..	..	..	2	2	4	..	..	..
40	Bhartiben Bhrugurlal	.	22	54	2	2	4	17	17	8½	2	2	4	81	20	35½
41	Shantaben Shankarlal	.	35	72	2	2	4	15	16	7½	2	2	4	76	20	53½
42	Bhuriben Shivram	.	32	12	2	2	4	..	..	..	2	2	4	..	..	..
43	Divaben Motiji	.	28	70	2	2	4	26	17	13	2	2	4	11	16	4½
44	Kesharben Atmaram	.	30	39	2	2	4	4	16	2	2	2	4	9	16	19
45	Dabiben Nanji	.	18	2	2	2	4	..	..	..	2	2	4	..	..	..
46	Kantaben Jadvi	.	28	11	2	2	4	..	..	..	2	2	4	..	..	..

47	Kanjiben Ishwarlal	28	10	2	2	4	..	..	2	2	4	..	..	..
48	Hiraben Malji	30	69	2	2	4	13	17	6½	2	4	84	20	36½
49	Shardaben Mohanlal	28	12	2	2	4	..	..	..	2	4	..	..	..
50	Diwaliben Dharmshi	32	13	2	2	4	..	..	..	2	4	..	..	..
51	Taraben Pitamberdas	18	10	2	2	4	..	..	..	2	4	..	..	..
52	Hiraben Payabhai	32	64	2	2	4	3	16	1½	2	4	87	18	37
53	Pushpaben Ravishanker	22	40	2	2	4	70	20	35	2	4	23	18	10
54	Premilaben Shanker	24	42	2	2	4	22	19	11	2	4	83	19	35½
55	Savitriben Vinaydeo	24	69	2	2	4	48	18	24	2	4	35	16	15½
56	Pushpaben Mohanlal	22	7	2	2	4	..	..	..	2	4	..	..	..
57	Maniben Jitubhai	34	71	2	2	4	27	18	13½	2	4	61	20	26½
58	Champaben Vashram	20	55	2	2	4	10	16	5	2	4	89	20	39
59	Gorniben Gaggi	35	61	2	2	4	19	17	9½	2	4	101	18	44½
60	Durgaben Vinodray	28	64	2	2	4	32	18	16	2	4	66	19	29
61	Atilaxmi Naranbhai	28	65	2	2	4	20	18	10	2	4	81	20	35½
62	Manoramaben Naranbhai	16	52	2	2	4	22	17	4½	2	4	..	..	..
63	Champaben Manilal	30	55	2	2	4	20	16	10	2	4	31	18	13½
64	Godavriben Lalubhai	30	14	2	2	4	..	..	..	2	4	..	..	..
65	Hashmukhben Harishkr	18	15	2	2	4	..	..	..	2	4	..	..	..
66	Maniben Somabhai	35	50	2	2	4	18	16	9	2	4	47	18	20½
67	Maniben Naranbhai	48	21	2	2	4	..	..	..	2	4	..	..	..
68	Chandrakantaben M.	40	39	2	2	4	3	16	1½	2	4	17	18	4½
69	Jasuben Ranjit Kr.	22	17	2	2	4	..	..	..	2	4	..	..	..
70	Maniben Ramjibhai	40	59	2	2	4	28	16	14	2	4	80	19	15
71	Kunjabala Devendrakumar	24	18	2	2	4	..	..	..	2	4	..	..	..
72	Indiraben Hariprasad	18	8	2	2	4	..	..	..	2	4	..	..	..
73	Promilaben Manubhai	28	41	2	2	4	23	18	11½	2	4	86	20	37½
74	Nirmalaben Jivanlal	24	10	2	2	4	..	..	..	2	4	..	..	..
75	Parsonben Manilal	28	4	2	2	4	..	..	..	2	4	..	..	..
TOTAL												300	2,306	

19	Marthab Soma .	.	.	.	30	M	80½	60	52	112	65	18	6½	65	55	20	71½	20	1
20	Sharadabandan Javer .	.	.	.	23	M	78	58	54	112	58	20	6½	54	62	116	86	20	2½
21	Sudhabandan G. Patel .	.	.	.	21	M	51	79	42	112	33	20	28½	52	48	100	61	20	32½
22	Sukhrab Chandulal .	.	.	.	27	M	70	60	52	112	78	18	3½	64	58	122	64	18	7½
23	Bhadrabal C. Trivedi .	.	.	.	28	M	57	59	53	112	71	20	8½	60	60	120	113	18	14½
24	Manibedan Ishwar .	.	.	.	29	M	50	20	12	32	20	26	22½	56	40	96	37	26	½
25	Ganaga B. Bhulja .	.	.	.	40	M	73½	57	65	122	50	18	3½	60	52	112	50	18	3½
26	Jetha B. Koya .	.	.	.	40	M	68½	59	53	112	43	22	3½	52	60	112	32	16	1½
27	Jetha B. Kuber .	.	.	.	46	M	69½	65	57	122	32	14	1½	58	62	120	43	21	3½
28	Mani B. Kantilal .	.	.	.	23	M	70½	58	50	108	43	22	4½	63	57	120	45	21	4½
29	Ruth B. Kadubhai .	.	.	.	38	M	56½	54	50	104	37	22	2½	52	48	100	45	20	3½
30	Manjala B. Dasbhai .	.	.	.	17	M	51½	57	55	112	45	22	27½	63	79	142	68	24	24½
31	Shanta Kantilal Patel .	.	.	.	33	M	58½	60	52	112	81	20	9½	58	58	116	85	20	4½
32	Rasmukh Mahesh Patel .	.	.	.	21	M	78	58	50	108	33	20	46½	50	60	116	20½	18	..
33	Indubai Ambalal Bhat .	.	.	.	35	M	74	58	54	112	72	22	12½	53	55	108	78	22	4½
34	Paulbhai .	.	.	.	30	M	79½	57	55	112	84	20	44½	57	55	112	48	20	1½
35	Isvar Kamabhai .	.	.	.	30	M	77½	59	53	112	66	18	11½	59	50	108	79	18	4½
36	Chamanlal Patel .	.	.	.	22	M	76½	60	52	112	76	20	4½	35	45	80	36	18	11½
37	Mulji Lalji .	.	.	.	35	M	81½	50	50	100	78	20	4½	62	58	120	67	20	16½
38	Khodalaji .	.	.	.	30	M	81	62	52	114	49	49	2	2	56	60	116	20	½
39	Ratilal Maganlal .	.	.	.	18	M	71½	58	50	108	81	20	9½	60	60	120	70	22	2½
40	Rameshchandra Patel .	.	.	.	22	M	77	60	40	100	64	20	19½	40	48	89	86	20	11½
41	Satyendra P. Manilal .	.	.	.	19	M	75	55	54	109	47	17	40½	66	50	116	71	20	5½
42	Purushotam S. Patel .	.	.	.	29	M	74½	55	45	100	60	17	6	70	50	120	91	22	4½
43	Ramanlal P. Patel .	.	.	.	22	M	77½	50	50	100	106	18	5½	52	40	92	21	20	3½
44	Reshvlal M. Pathak .	.	.	.	24	M	76	62	52	114	87	22	10	45	55	100	50	20	8½
45	Salubhai Kalidas .	.	.	.	20	M	76	65	40	113	41	28	10½	52	60	112	53½	22	5½
46	Atmaram Phula .	.	.	.	18	M	68½	54	50	104	54	20	31½	60	52	112	61	24	10½
47	Kalidas Rana .	.	.	.	24	M	78½	54	50	104	58	20	16½	65	55	120	79	20	5½

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
48	Narsinha Phula . . . . .	. . . . .	81½	62	50	112	66	20	2½	53	67	120	73	22	1½
49	Popat Somabhai Panchal . . . . .	. . . . .	66	61	51	112	73	20	9½	61	55	116	100	20	18½
50	Parasottam S. Patel . . . . .	. . . . .	74	59	63	112	56	22	17½	56	40	96	63	20	15½
51	Bhai P. Patel . . . . .	. . . . .	79½	48	46	94	67	20	6	65	55	120	75	20	4½
52	Haribhai A. Patel . . . . .	. . . . .	76	62	50	112	67	20	19½	48	40	88	50	10	4½
53	Kanubhai G. Patel . . . . .	. . . . .	78	62	50	112	65	21	20½	67	53	120	59	20	1½
54	Rameshchandra P. Pandya . . . . .	. . . . .	80	61	51	112	58	20	7½	50	62	112	46	22	3½
55	Naginbhai H. Patel . . . . .	. . . . .	80½	73	42	112	16	20	6½	85	55	120	30½	20	½
56	Chaganbhai S. Patel . . . . .	. . . . .	77½	62	50	112	52	18	18	57	62	119	100½	10	13½
57	Phulbhai H. . . . .	. . . . .	76½	60	40	100	40	21	8½	65	55	120	89	20	29
58	Jayantilal M. Pandya . . . . .	. . . . .	78½	62	50	112	19½	18	44½	62	50	112	51	10	1½
59	Bachu M. Sena . . . . .	. . . . .	78	62	50	112	81	20	½	64	48	112	83	20	16½
60	M. Ishwar Bhat. . . . .	. . . . .	74	60	52	112	89	16	3½	50	40	90	48	16	2½
61	Manilal Morar . . . . .	. . . . .	71½	58	50	108	52	22	39½	55	52	107	76	22	24½
62	Ramu Dhula . . . . .	. . . . .	77	61	51	112	26	20	43½	56	55	111	37	20	20½
63	Arvind I. Patel . . . . .	. . . . .	48	59	52	111	44	14	20	60	60	120	42	20	51½
64	Mo. Daud. . . . .	. . . . .	70	62½	50	112½	65	20	12½	42	30	72	50	18	6
65	Shantabedan U. Patel . . . . .	. . . . .	75	30	26	56	56	20	2½	35	25	60	63	20	8½
66	Tarababad C. Patel . . . . .	. . . . .	75	29	27	56	46	22	3½	25	35	60	59	18	8½
67	Kailash B.L. Patel . . . . .	. . . . .	79	28	28	56	28	20	3½	24	24	24	62	18	2½
68	Saudabadan Vazidar . . . . .	. . . . .	69	26	22	48	16	19	½	12	8	20	10	20	30
69	Urnabadan R. Bhat . . . . .	. . . . .	31	30	26	56	29	20	2½	11	17	28	22	22	1½
70	Ratilal S. Bhat . . . . .	. . . . .	74	29	27	56	22	18	3½	12	16	28	5	22	2½
71	Devji Jethabhai . . . . .	. . . . .	69½	38	24	62	30	16	11½	26	22	48	30	26½	11½
72	Dalvantrai M. Pandya . . . . .	. . . . .	42	36	26	62	25	20	7	18	22	40	17	20	2
73	Pragji Jetha . . . . .	. . . . .	74	30	26	56	26	18	5½	30	22	52	29	18	6½

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
74	Gowardhan K. Patel . . .	. . .	19	M	76	29	28	56	59	14	41	32	28	60	53	58	21
75	Vimlabadan H. Patel . . .	. . .	22	M	58	30	26	56	42	22	51	30	30	60	46	16	11
76	Kantabadan H. Patel . . .	. . .	28	M	73	28	28	56	29	20	41	31	29	60	50	20	11
77	Rambadan Dudhabhai . . .	. . .	40	M	63	26	22	48	24	18	21	30	26	56	43	18	11
78	Rudhabadan M. Prasad . . .	. . .	19	M	57	28	24	52	35	20	10	10	6	16	91	20	19
79	Rambadan Motibhai . . .	. . .	20	M	79	24	24	48	20	20	54	29	31	60	52	20	13
80	Manibadan Dalabhai . . .	. . .	17	M	74	20	16	36	20	20	21	35	25	60	52	22	24
81	Durgabadan A. Bhat . . .	. . .	30	M	79	30	56	86	31	22	11	28	24	52	49	16	7
82	Savitabadan S. Patel . . .	. . .	29	M	80	30	26	56	26	20	1	30	26	56	31	26	13
83	Vimlabadan T. Patel . . .	. . .	35	M	81	29	27	56	14	18	1	32	28	60	69	16	21
84	Shantabadan Patel . . .	. . .	34	M	80	30	26	56	24	18	21	30	26	56	25	16	11
85	Shantilal C. Patel . . .	. . .	18	M	81	29	27	56	6	20	1	30	30	60	17	20	13
TOTAL . . .															8150	5135	

Name of Pariahramalaya; Nadiad (Gujarat)

Date of starting: 19-1-56

No. of charkha sets : 40

S. No.	Name of Operative	Age Sex	Class of No. days From 10th March, 1956 to 27th March, 56 From 28th March to 13th April, 56																	
			spinner	of Trg.	Duration of work (Hours)								Duration of work (Hours)							
					Carding	Spg.	Total	Prodn.	Count	Loss	Car-	Loss	Spg.	Total	Prodn.	Count	Loss			
					5	6	7	8	9	10	11	12	13	14	15	16	tolas	tolas		
1	Reginadevi Manisalal .	19 F	75	50	38	88	35	18	6½	50	58	108	73	20	86½					
2	Kirpaben Dahyabhai .	20 F	48	56	48	104	35	18	24½	35	46	81	37½	18	16					
3	Duliben Laljibhai .	37 F	78½	62	50	112	80	20	24½	58	50	108	77	20	7½					
4	Mariyamben Vithalbai	30 F	79	64	48	114	97	20	6	62	50	112	67	22	7					
5	Babuben Hiralal .	22 F	80	52	50	112	87	20	3	60	120	120	66	22	½					
6	Maniben Danial .	25 F	74½	30	26	56	26	20	6	55	55	120	79	18	9					
7	Gangaben Dhanjibhai	28 F	75½	62	50	112	64½	20	36½	52	56	108	78½	20	4					
8	Suniben Dalabhai .	25 F	76	56	48	104	61½	20	11	52	68	120	86	22	5					
9	Dahiben Keshavlal .	25 F	61½	50	46	96	41½	20	20	52	60	112	76	22	24					
10	Ashiben Danabhai .	18 F	76	62	50	112	55	21	11½	53	51	104	82½	21	4					
11	Shardaben Devjibhai .	30 F	75½	60	52	112	58	16	2	64	56	120	104	20	17½					
12	Mariyamben Dasbhai .	35 F	71½	58	54	112	74	20	2	57	63	120	93	22	16					
13	Vahaliben Umedbhai .	40 F	71	60	52	112	32	14	3½	57	36	93	103	19	40					
14	Amarben Savabhai .	19 F	77½	61	51	112	60	18	3	60	60	120	127	22	4½					
15	Manikaben Hiralal .	26 F	55	56	48	104	51	22	16½	62	58	120	106	22	43					
16	Premhen Trikambhai .	37 F	74	58	54	112	94	22	12	63	57	120	117	24	3½					
17	Kesharben Ramjibhai .	26 F	75	68	44	112	46	16	19½	57	63	120	91	20	17					
18	Kashiben Bhalabhai .	49 F	71	59	53	112	46	16	10	55	57	112	55	20	17					

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
19	Mayaben Somabhai .	. .	80½	60	52	112	65	18	½	65	55	120	71½	20	1½
20	Sharda ben Javerbhai .	. .	78	58	54	112	58	20	7	54	62	116	88	20	2½
21	Sudhaben Gordhanbhai .	. .	51	70	42	112	33	20	28	52	48	100	61	20	32½
22	Sushblaven Chandulal .	. .	70	60	52	112	78	18	3½	64	58	122	64	18	7½
23	Bhadralaba Chandulal .	. .	57	59	53	112	71	20	8½	60	60	120	113	18	14
24	Maniben Ishwarbhai .	. .	50	20	12	32	26	26	22½	56	40	96	37	26	½
25	Gangaben Muljibhai .	. .	73½	57	65	112	50	18	4	60	52	112	50	18	9
26	Jethiben Kuberbhai .	. .	69	65	57	112	32	18	1	52	60	112	32	16	1
27	Jethiben Koyabhai .	. .	68½	59	53	112	43	22	4	58	62	120	43	20	4
28	Maniben Kantilal .	. .	71½	58	50	108	43	20	4½	63	57	120	43	21	4½
29	Rucethben Kadubhai .	. .	56½	54	50	104	37	22	3	52	48	100	46	20	3½
30	Manjulaben Dayabhai .	. .	51½	57	55	112	45	22	27½	63	78	141	68	24	25½
31	Shantabai Kantilal .	. .	58½	60	52	112	81	20	9½	58	58	116	85	20	4½
32	Hasmukhbhai Maheschandr	. .	77	58	50	108	33	20	46½	56	60	116	20½	18	..
33	Indubhai Ambal .	. .	74	58	54	112	72	20	12½	53	55	108	78	22	4½
34	Paulbhai Darshwabhai .	. .	89½	57	55	112	84	20	44	57	65	112	48	20	9½
35	Ishwarbhai Kamabhai .	. .	77½	59	53	112	84	20	88	57	55	112	48	20	1
36	Chumanlal .	. .	76	60	52	112	76	20	8	35	45	80	36	18	11
37	Muljibhai Laljibhai .	. .	81	50	50	100	78	20	8	62	53	120	63	20	16
38	Khodabhai Laljibhai .	. .	8	62	52	114	48	18	2	56	60	116	73	20	1
39	Ratilal Maganlal .	. .	71	58	50	108	81	20	9	60	60	120	70	22	2
40	Rameshchandra Narsinbhai	. .	77	60	40	100	64	20	19	40	48	88	86	20	11
41	Satendraprasad .	. .	75	55	58	113	47	17	80	66	50	116	71	20	9
42	Purabortam Sankarlal .	. .	78	55	45	100	60	17	6	70	50	120	91	22	8
43	Ramanlal Fajlal .	. .	77	50	50	100	106	18	5	52	80	132	27	20	3
44	Keshavlal Manilal .	. .	76	62	52	114	87	22	10	45	55	100	40	30	9

7159 4347

TOTAL .

Date of starting: 3-1-56

Name of Parishramalaya : Kunja, Dr. Mehsana (Gujarat)

No. of Amber charkha sets: 33

No.	Name of Operative	Age-Sex	Class of Spinner	No. of days of Ttg.	From 20th March, 56 to 27th March, 56										From 28th March to 13 th April, 56.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
71	Shahubahan Jivegkhan
72	Shahubahan Hashinkhan
73	Umraobahan Saidkhan	.	.	.	.	.	.	.	.	.	.	.	.	.	.
74	Chotabahan Hussainkhan	.	.	.	.	.	.	.	.	.	.	.	.	.	.
75	Jhorubahan Mustafkhan	.	.	.	.	.	.	.	.	.	.	.	.	.	.
76	Arbun Phetekhan	.	.	.	.	.	.	.	.	.	.	.	.	.	.
77	Jadabahan Ibrahimkhan	.	.	.	.	.	.	.	.	.	.	.	.	.	.
78	Merubahan Shernsherikhan	.	.	.	.	.	.	.	.	.	.	.	.	.	.
79	Nashubahan Miankhan	.	.	.	.	.	.	.	.	.	.	.	.	.	.
80	Ainabahan Kashamkhan	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	Sayabbahan Sabudin	.	.	.	.	.	.	.	.	.	.	.	.	.	.
82	Chundabahan Shamrukhan	.	.	.	.	.	.	.	.	.	.	.	.	.	.
83	Jainabahan Nehrukhan	.	.	.	.	.	.	.	.	.	.	.	.	.	.
84	Chelkhan Sharmarankhan	.	.	.	.	.	.	.	.	.	.	.	.	.	.
85	Kusubahan Maghavlal	.	.	.	.	.	.	.	.	.	.	.	.	.	.
86	Shantabahan Motiram	.	.	.	.	.	.	.	.	.	.	.	.	.	.
87	Phakir Ahmed	.	.	.	.	.	.	.	.	.	.	.	.	.	.
88	Nathi Bahan	.	.	.	.	.	.	.	.	.	.	.	.	.	.
89	Kher Bibi	.	.	.	.	.	.	.	.	.	.	.	.	.	.
90	Nashub Bahan	.	.	.	.	.	.	.	.	.	.	.	.	.	.
91	Shantabahan Mithundas	.	.	.	.	.	.	.	.	.	.	.	.	.	.
92	Nathubeichethabhai	.	.	.	.	.	.	.	.	.	.	.	.	.	.
93	Arbu Nasir Khan	.	.	.	.	.	.	.	.	.	.	.	.	.	.
TOTAL															

3338 1220

Date of starting: 20-1-56

Number of Charkha sets : 20.

Name of Parishramalaya : MEERUT (U.P.).

From 10th March 56 to 27th March 56 From 28th March to 13th April, 1956.

Serial No.	Name of operative	Class of Spinner	No. of days of Trg.	Duration of work (Hours)					Duration of work (Hours)					Card- ing	Spg.	Total Prodn. hanks	Count	Loss Tolas	
				1	2	3	4	5	6	7	8	9	10						11	12	13	14	15	16
1	Inidhalaji	.	.	.	.	.	62	36	36	72	135	18	60	45	45	90	111	18	39
2	Chaniram	.	.	.	.	.	72	45	45	90	114	16	100	45	45	90	92	12	40
3	Vanvari Bunva	.	.	.	.	.	68	45	45	90	98	14	60	33	33	66	70	16	36
4	Omprakash Kav	.	.	.	.	.	54	45	45	90	134	14	25	83	72	49	49½	14	23
5	Rameshchandrabbhai	.	.	.	.	.	54	45	45	90	159	16	60	35	28	72	107	16	38
6	Hirasinh	.	.	.	.	.	69	45	45	90	98	16	80	36	36	72	44	18	20
7	Dalichand	.	.	.	.	.	66	45	45	90	67	14	50	33	33	66	83	20	30
8	Radheshyam	.	.	.	.	.	55	39	39	78	102	16	60	33	33	66	62	16	36
9	Anandi Vallabh	.	.	.	.	.	54	45	45	90	80	58	40	36	36	72	72	14	36
10	Dharmpal Sharma	.	.	.	.	.	52	42	42	84	106	16	50	45	45	90	116	18	40
11	Kashichandra	.	.	.	.	.	56	39	39	78	76	20	40	45	45	90	84	12	20
12	Khumansinh	.	.	.	.	.	53	36	36	72	63	16	50	39	39	78	116	14	40
13	Laxmunda	.	.	.	.	.	53	42	42	84	92	12	56	33	33	66	83½	16	24
14	Abdulhabib	.	.	.	.	.	45	39	39	78	61	16	40	45	45	90	149½	20	40
15	Shivajisinh	.	.	.	.	.	53	45	45	90	105	14	60	33	33	66	72	16	29

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
16	Omprakash Sharma	.	.	20	M	75	39	39	78	78	18	40	33	33	66	78	14	20
17	Shivcharandas	.	.	20	M	58	45	45	90	70	12	50	42	42	84	113	12	50
18	Rannath	.	.	21	M	69	45	45	90	72	16	30	45	45	90	89	14	20
19	Bhurchandra	.	.	32	M	71	45	45	90	95	18	40	42	42	84	66	16	20
20	Gangaprasad	.	.	21	M	48	45	45	90	95	18	42	45	45	90	104	12	28
21	Kamalasinh	.	.	20	M	58	39	39	78	73	16	44	45	45	90	89	14	24
22	Balvirsinh	.	.	20	M	58	45	45	90	78	18	40	42	42	84	87	18	32
23	Dhiddhashah	.	.	20	M	54	36	36	72	48	14	29	45	45	90	86	14	36
24	Sureshchandra	.	.	21	M	54	42	42	84	60	14	30	45	45	90	120	20	32
25	Jahirahmed	.	.	20	M	48	42	42	84	74	16	36	37	37	54	564	18	16
26	Radheshyam Gaud	.	.	23	M	49	42	42	84	14	12	4	24	24	48	8	14	2
27	Jitendralal	.	.	22	M	63	42	42	84	79	14	20	36	36	72	41	16	8
28	Tejpalsinh	.	.	21	M	58	36	36	72	52	14	20	45	45	90	40	18	8
29	Jaiprakash	.	.	20	M	50	48	45	93	40	10	20	21	21	42	19	20	3
30	Khulupaman	.	.	20	M	52	33	33	66	51	16	24	39	39	78	96	16	34
31	Kalicharan	.	.	24	M	67	45	45	90	55	14	30	33	33	66	41	16	15
32	Shahishchandraji	.	.	20	M	55	30	30	60	40	14	24	26	26	52	36	14	13
33	Janaradanji	.	.	28	M	69	20	20	40	23	18	28	23	23	46	72	18	26
34	Satyaparakash	.	.	20	M	27	18	18	36	17	12	28	22	22	44	11	14	5
35	Rajakishan	.	.	15	M	57	23	23	46	38	12	28	23	23	46	36	12	14
36	Lakshmidivi	.	.	20	F	72	22	22	44	47	18	30	22	22	44	64	18	20
37	Vidyavati	.	.	23	F	71	21	21	42	58	16	26	23	23	46	84	14	28
38	Laxmidivi	.	.	22	F	72	23	23	46	49	18	28	22	22	44	45	18	20
39	Prakashjati	.	.	24	M	65	15	18	36	40	18	24	23	23	46	49	16	24
40	Savitri	.	.	29	F	70	22	22	44	39	12	28	23	23	46	59	12	23
41	Urmilla	.	.	22	F	72	23	23	46	44	16	30	22	22	44	66	16	24

2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
42 Kalavati	.	25 F	72	22	22	44	42	14	28	23	46	55	14	22		
43 Harpyari	.	24 F	72	23	23	46	30	14	20	22	44	70	14	24		
44 Kalavati	.	25 F	61	18	18	36	28	12	20	23	46	26	10	21		
45 Premkali	.	23 F	55	18	18	36	22	14	20	22	44	23	12	10		
46 Chammeli	.	24 F	70	23	23	46	33	14	20	23	46	46	14	20		
47 Kailasvati	.	23 F	69	20	20	40	27	12	20	22	44	47	10	21		
48 Sunandadevi	.	24 F	72	22	22	44	36	14	24	22	44	41	14	13		
TOTAL															3124	3377

Date of Starting : 20-1-56
Number of Charkha sets : 20.

Name of Parishramalaya : MEERUT (U.P.) (27)

Serial No.	Name of operative	Class of Spinner	No. of days of Trg.	From 10th March 56 to 27th March 56					From 26th March 56 to 13th April 56						
				Duration of work (Hours)					Duration of work (Hours)						
				Card- ing	Spg.	Total Prodn. hanks	Count	Loss Tolas	Card- ing	Spg.	Total Prodn. hanks	Count	Loss Tolas		
I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Age-Sex													
1	Ramasharanbhai	. . . 20 M	69	56	51½	107½	73	149	12½	55	56½	111½	13½	14	19
2	Ramashankerbhai	. . . 18 M	77½	54½	49	103½	91	162	15	54	56½	110½	89	14	14
3	Caburanbhai	. . . 23 M	76½	47	44	91	50½	149	15	52½	49	101½	73	14	14
4	Chandrasenbhai	. . . 15 M	79	47½	48	95½	85	149	15	52½	53	105½	16½	12	20
5	Umashanker 1	. . . 23 M	80	52	51	103½	83	149	15	54	53½	107½	93	14	17½
6	Umashanker No. 2	. . . 21 M	80	54½	49	103½	90	162	15	54	56½	110½	80	14	16
7	Rampal Singh	. . . 21 M	79½	55	53½	108½	72	123	15	55½	55	110½	80	12	17½
8	Babusingh Bhai	. . . 20 M	79½	49	40	89	89	149	17	51½	53½	94	88	14	16
9	Navia Singh	. . . 21 M	74	57	54	111	93	149	17½	56	56	112	88	12	18
10	Ratansinh	. . . 20 M	72½	51	50	101	67	149	17½	51	45	96	63	10	16
11	Jahansinh	. . . 21 M	79½	54½	50½	100½	101	162	16	56½	51½	108	98	12	21
12	Ramadhir	. . . 20 M	80	66½	50½	107	80	162	16	57	54	111	30	14	18
13	Pritamsinh	. . . 20 M	80	56	56½	112½	127½	142	26	55	56½	111½	102	12	24
14	Rajvir	. . . 21 M	78	55½	57½	113½	61	14	19	57½	51½	108½	72	14	18
15	Kishorilal	. . . 20 M	79½	66	56½	112½	127½	149	16	52	52½	104½	102	12	24
16	Jagvash	. . . 24 M	78	49	48½	97½	62	161	14	55½	51	106½	84	16	18
17	Bajinath	. . . 22 M	79½	41	46	87	82	162	17	37½	48½	86	84½	16	18
18	Swadeshkumar	. . . 18 M	80	50½	53	103½	75	149	15	54½	54	108½	77	14	15
19	Omprakash	. . . 18 M	80	54½	53½	108½	72½	14	14	51½	48	99½	66	14	13½
20	Prayagdatt	. . . 21 M	80	48½	54½	103½	96	14	20	48½	49½	98½	63	12	15
21	Sukthamsinh	. . . 22 M	77½	56½	50	109½	100½	162	17	55	36	91	85	14	15½
22	Kaushumanand	. . . 26 M	80	51½	54	103½	96	162	15	42½	44½	87	63	12	14

18	Gangashran Kaushik	.	.	25	M	51	45	51	96	82	18	30	35	35	68	77	18	27
19	Om prakash	.	.	22	M	53	48	47	95	38	12	22	40	41	81	41	14	12
20	Jaypal, singh—I	.	.	22	M	56	54	52	106	78	14	26	57	52	109	85½	16	39
21	Ramkumar	.	.	25	M	51	51	28	79	49	14	25	43	45	88	59	16	24
22	Ghanshyamlal	.	.	200	M	57	45	45	90	28	12	12	54	49	103	34	12	22
23	Kajaram Tyagi	.	.	21	M	56	49	52	101	72	14	36	50	53	103	69	14	33
24	Vedprakash	.	.	21	M	54	57	55	112	105	18	40	50	57	107	147	18	44
25	Kamalninh	.	.	20	M	54	53	49	102	41	12	15	45	52	97	40	12	19
26	Tulechandra Soni	.	.	26	M	50	51	58	109	46	12	20	51	47	98	42½	14	20
27	Pratapninh	.	.	27	M	52	51	52	103	62	16	30	51	49	100	78½	14	36
28	Mahaversinh	.	.	24	M	53	44	43	87	40	12	20	52	48	100	72	14	32
29	Jaypalninh—II	.	.	20	M	50	54	53	107	45	12	21	53	51	104	69	14	31
30	Babuji	.	.	20	M	57	52	56	108	61	14	26	50	50	100	50½	18	22
31	Dularidevi	.	.	15	F	70	51	43	94	83	14	32	51	30	81	78½	16	36
32	Vimla	.	.	14	F	70	49	47	96	90	16	30	49	49	98	76	18	34
33	Rajbala	.	.	15	F	70	49	46	95	60	12	30	46	49	95	58	16	30
34	Savitri	.	.	16	F	69	43	44	87	84	16	32	59	53	103	80	17	32
35	Rajeshwari	.	.	15	F	69	46	44	90	85	16	30	33	48	81	80½	18	42
36	Sarla	.	.	16	F	70	52	27	79	106	16	45	50	50	100	97	20	34
37	Rajesh	.	.	13	F	51	28	19	47	29	12	16	25	26	51	28½	16	17
38	Shaktuntala	.	.	18	F	49	21	23	44	27	14	20	27	24	51	30	16	16
39	Chamankali	.	.	40	F	51	25	22	47	37	12	15	29	22	51	27	14	15
40	Jippyari	.	.	28	F	51	25	21	46	39	12	16	27	25	52	39	16	15
41	Shikeha	.	.	16	F	51	56	22	78	44	12	17	28	28	56	53	16	22
42	Prem	.	.	4	F	51	25	22	47	48	12	25	27	24	51	31	14	12
43	Malti	.	.	20	F	51	16	22	38	47	14	17	30	27	57	48	18	17
44	Shanti	.	.	25	F	51	24	20	44	35	12	15	32	25	57	40	14	12

TOTAL

3989 2856

Name of Parishramalaya :

HAPUR (U.P.)

Date of Starting 20-1-56

Number of Charkha sets : 60

From 10th March 56 to 27th March 56 From 28th March 56 to 13th April 56

Serial No.	Name of operative	Class of Spinner	No. of days of Trg.	Duration of work (Hours)				Duration of work (Hours)				Duration of work (Hours)				Count hanks	Total Prodn. hanks	Spg. Card ing	Loss Tolas	Count hanks	Total Prodn. hanks	Count Loss Tolas
				4	5	6	7	8	9	10	11	12	13	14	15							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16							
1	Ramkumarbhai	.	.	85	60	60	120	88	14	30	64	64	128	73	14	20						
2	Vadansinh	.	.	85	60	60	120	78	14	25	36	36	72	30	14	13						
3	Dharwirsinh	.	.	85	60	60	120	78	16	25	64	64	128	53	14	12						
4	Rohilakhobhai	.	.	65	60	60	120	85	14	25	61	61	128	96	16	35						
5	Rajkumarbhai	.	.	85	60	60	120	85	14	30	64	64	128	82	16	20						
6	Mahendrasinh	.	.	85	60	60	120	69	12	20	64	64	128	64	14	25						
7	Dhidasinh	.	.	85	60	60	120	192	12	25	64	64	128	79	14	32						
8	Lakiprasad	.	.	85	60	60	120	69	10	30	61	61	128	63*	12	20						
9	Jamulkishor	.	.	65	60	60	120	51	122	20	64	64	128	86	10	17						
10	Chuksasinh	.	.	85	60	60	120	73	14	25	64	64	128	60	14	15						
11	Kishanlaji	.	.	85	60	60	120	64	12	20	64	64	128	49	14	20						
12	Sureshchandra	.	.	85	48	48	96	59	10	25	64	64	128	64	12	20						
13	Mahendrasinh Gaud	.	.	83	60	60	120	87	13	25	64	64	128	50	14	25						
14	Lunbarsinh	.	.	84	60	60	120	95	16	25	64	64	128	95	18	25						
15	Chanderkisher	.	.	84	60	60	120	85	15	25	64	64	128	96	18	25						
16	Harishankarbhai	.	.	84	44	44	88	37	16	20	64	64	128	74	16	28						
17	Nrutyusinh	.	.	84	28	28	56	46	14	10	64	64	128	71	16	20						
18	Baburam	.	.	83	60	60	120	59	12	20	64	64	128	55	14	25						
19	Asharam	.	.	83	60	60	120	99	14	30	64	64	128	104	14	20						
20	Pannalal	.	.	83	60	60	120	66	10	10	64	64	128	60	12	10						
21	Koshasinh	.	.	76	60	60	120	82	14	25	64	64	128	70	12	25						

सत्यमेव जयते

22	Murari-Lalbhair	.	.	.	20	M	76	60	60	120	72	12	30	64	64	128	66	10	20
23	Ramnivasbhai	.	.	.	20	M	76	60	60	120	64	10	15	57	57	114	57	10	25
24	Shingasharanbhai	.	.	.	35	M	89	60	60	120	91	10	33	64	64	128	98	10	30
25	Bhaivalsinh	.	.	.	20	M	89	60	60	120	78	14	20	64	64	128	66	14	17
26	Jaiprakash	.	.	.	19	M	89	60	60	120	92	14	30	64	64	128	60	12	30
27	Vajinathram	.	.	.	19	M	89	60	60	120	62	14	30	64	64	128	60	12	32
28	Mansinbhai	.	.	.	22	M	87	60	60	120	88	16	25	64	64	128	47	14	27
29	Panekhadi	.	.	.	19	M	85	28	28	56	29	12	15	32	32	64	35	10	5
30	Maheshsinh	.	.	.	18	M	85	60	60	120	86	14	25	52	52	104	62	12	30
31	Kannadevi	.	.	.		F	95	30	30	60	41	12	13	32	32	64	31	14	5
32	Jaibunishad	.	.	.		F	93	30	30	60	63	20	15	32	32	64	44	18	8
33	Kashakumari	.	.	.		F	92	30	30	60	29	14	10	32	32	64	28	14	3
34	Vidyavalidevi	.	.	.		F	91	30	30	60	40	12	10	32	32	64	27	14	12
35	Liladevi	.	.	.		F	91	30	30	60	50	18	13	32	32	64	48	18	5
36	Rhmkani	.	.	.		F	90	30	30	60	43	16	10	32	32	64	29	16	8
37	Radhadevi	.	.	.		F	90	30	30	60	66	16	10	32	32	64	51	18	15
38	Nareshkumari	.	.	.		F	85	30	30	60	28	14	7	32	32	64	22	14	6
39	Jivanidevi	.	.	.		F	85	14	14	28	17	14	10	32	32	64	47	12	8
40	Lalkauridevi	.	.	.		F	83	30	30	60	54	12	13	32	32	64	46	14	20
41	Ramkumaridevi	.	.	.		F	95	30	30	60	52	22	17	32	32	64	49	20	13
42	Trivenidevi	.	.	.		F	93	30	30	60	42	20	10	32	32	64	37	18	6
43	Kashmiridevi	.	.	.		F	93	30	30	60	53	22	15	32	32	64	53	14	13
44	Umadevi	.	.	.		F	92	30	30	60	35	14	8	32	32	64	21	14	5
45	Vidyavatidevi	.	.	.		F	92	30	30	60	25	14	7	32	32	64	24	18	7
46	Rameshwaridevi.	.	.	.		F	91	30	30	60	38	14	7	32	32	64	46	12	13
47	Omkmari	.	.	.		F	92	30	30	60	66	18	15	32	32	64	51	16	3
48	Sumitradevi	.	.	.		F	86	14	14	28	13	14	4	16	16	32	30	12	5
49	Rajashawridevi	.	.	.		F	78	30	30	60	34	10	10	32	32	64	37	10	10
50	Anguridevi	.	.	.		F													

TOTAL

4866 2759

Name of Paristramalaya : Buland Shabar.

Serial No.	Name of operative	Class of Spinner	No. of days of Trg.	From 10th March to 27th March 56				From 28th March to 13th April 1956							
				Duration of work (Hours)				Duration of Work (Hours)							
				Car- ding	Spg.	Total	Prod'n. hanks	Car- ding	Spg.	Total	Prod'n. hanks	Count Loss Tolas			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Shri Klemchandrabhai	19 M	72	36½	36½	73	49	14	..	39	41	80	60½	16½	..
2	Shri Chandramanbhai	18 M	75	86½	93	179½	89½	14	9½	168	54	222	83½	14	..
3	Shri Keharbhai	22 M	75	45	29	74	69	14	21	60	53	113	87	14	..
4	Shri Gangasharanbhai	20 M	75	43½	36	79½	43	12	24	50	55	105	67	14	..
5	Shri Tekchandbhai	22 M	75	59½	46½	106½	63	14	..	54	61	115	90½	16	..
6	Shri Jayprakashbhai	21 M	75	35½	28½	64	28½	12	50	66½	39½	106	52½	14	..
7	Shri Mohanlalbhai	21 M	75	49	53	102	72	14	10	77	55	132	56	10	..
8	Shri Surajmanbhai	20 M	75	42	46	88	69	14	..	75½	31	106½	78	14	..
9	Shri Vatchitravir Bhai	23 M	75	38½	44	82½	..	14	12	55	42	97	76	14	..
10	Shri Rajasinghbhai	20 M	75	44½	41½	86	67	14	..	58	59½	117½	62	14	27½
11	Shri Mukhvirsinghbhai	23 M	75	46½	50½	97	62½	14	..	56½	54½	111	71	14	85
12	Shri Vijaysingh	19 M	75	30	32	62	43	14	22½	31	41	72	27	14	17
13	Shri Girishchandraji	19 M	75	43½	43½	87	73	14	9	45½	43½	89	78	14	32½
14	Shri Rambharoseji	22 M	75	53	46	99	49	34	77½	25	37	62	42	18	1
15	Shri Ramdeoabhai	19 M	75	41	46	87	72	14	..	25	51½	76½	67	18	27½
16	Shri Madanlalbhai	22 M	75	49	41½	90½	65½	12	101	53	41	94	89	18	77½
17	Shri Nepalasingh	20 M	75	34	39½	73½	68	14	34	6	6	12	17	14	81½
18	Shri Nanakchandbhai	20 M	70	29	31	58	38	10	36½	19	31	50	35	14	..
19	Shri Rajpal	21 M	70	40	49	89	49	14	33½	58½	52	110½	63	16	..
20	Shri Balkrishan	22 M	75	42	56	98	30½	12	82½	14	40	54	23	10	..
21	Shrimati Amratlataben	20 F	75	42	56	98	30½	12	82½	24	40	64	28	10	..
22	Shrimati Pushpalumariben	16 F	72	49	57	106	76	14	..	50	65	115	83	10	32½
23	Shrimati Sasiprabhaben	17 F	61	61	29	61	45	12	10½	60	57	117	91	10	..

24	Shrimati Urmila Varma	.	.	14	F	66	56	50	106	66	14	43½	29	39	68	48	14
25	Shrimati Sushilaben	.	.	20	F	72	45	50	95	42½	10	20	46	60	106	49½	16
26	Shri Puranchandrabhai	.	.	20	M	68	55	41½	96½	55	14	35	58	53	111	88	18
27	Shri Hulasiram	.	.	20	M	68	34	44	78	53	12	..	57	51	108	74½	16
28	Shri Jagannathbhai	.	.	18	M	60	30½	29	59½	47	12	11½	56	53	109	103	16
29	Shri Phulechandbhai	.	.	24	M	60	56	49	110	52	16	..	53	59	112	73	16
30	Shri R. Patibhai	.	.	20	M	60	40	36	76	31	12	67½	47½	45½	93½	50	14
31	Shri Chetrambhai	.	.	21	M	67	44½	52	96½	82	12	..	38½	53	91½	80	16
32	Shri Saritbhai	.	.	19	M	67	66½	37½	104	38	12	42½	52½	49½	102	50½	16
33	Shri Tegpalbhai	.	.	20	M	65	31	34½	65½	44½	14	36½	22	25	47	36	16
34	Shri Dhaneshchandrabhai	.	.	22	M	67	42	41	83	40	10	13½	55	55	110	49	16
35	Shri Bharamudatti	.	.	20	M	69	43	45½	88½	43	12	77½	50½	54½	104½	61	16
36	Shri Fulchandbhai	.	.	20	M	60	35	25	60	11	10	86½	36	49	85	16	14
37	Shri Ramkishanbhai	.	.	20	M	60	43½	49½	93	59	12	58½	3½	23½	27	50	12
38	Shrimati Ramvatibahin	.	.	21	F	59	43	53	96	42½	10	18½	56	60	116	64	14
39	Shri Ramsevkabhai	.	.	21	M	65	50	52½	102½	63	10	..	54½	58	112½	79	20
41	Shri Shivnarayan Tivari	.	.	22	M	65	55	35	90	67	12	..	62	36	98	84	16
42	Shri Bhagwanbhai	.	.	20	M	67	85½	44½	130	45½	12	20	56	58½	114½	79	14
43	Shri Chandansingh	.	.	18	M	51	58½	51½	110	68	14	16½	60	60	120	70	14
43	Shri Harishchandra Varma	.	.	20	M	53	46½	55	101½	55	14	46½	52	59	111	80	12
44	Shri Mukandasingh	.	.	20	M	64	49	49	98	63	12	30	55	51½	106½	66	14
45	Shri Ramchandrasingh	.	.	20	M	64	50½	52½	103½	63	14	58½	56½	52½	109	80	16
46	Shri Ramshanker	.	.	19	M	70	55	52	107	82	12	..	52½	52½	104½	82	1
47	Shri Harishchandra	.	.	18	M	70	51	60	111	64½	8	26½	39½	55½	95	59	14
48	Shri Mahabakimkhan	.	.	18	M	59	56	56	112	63	10	..	54	56	110	70	14
49	Shri Rikhpal Singh	.	.	23	M	56	52	43	95	53	9	146½	56	56½	112½	74	14
50	Shri Nand Kishore	.	.	22	M	58	56	56	112	67	12	..	58½	58½	117	65	14
51	Shri Sohan Lal Ji	.	.	21	M	58	48½	56	10½	72	9	36½	60½	63½	124	94	14
52	Shri Gurprashad	.	.	22	M	70	46	52	98	81	8	6½	50½	51½	102	78	16
53	Shri Rambharibhai	.	.	23	M	66	54	48½	110½	71	9	6½	51	52½	103½	90	16

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
54	Shri Jagpalsingh	.	21	M	66	46	86	90	38½	50	52½	103½	83	16	52½
55	Shri Ved Prakashbhai	.	20	M	87	89	44	133	63½	8	6	111	85	12	77½
56	Shri Gangasagarbhai	.	18	M	63	56	40	96	60	12	68	48½	111½	87	12
57	Shri Shivraji Bhai	.	20	M	57	82	78	160	88	8	5	55½	111½	73	14
58	Shri Raghuvir saranbhai	.	.	.	59	44	45	89	69	8	55	59	114	83	14
59	Shri Ramkrishan Gupta	.	.	.	67	53½	53	105½	66	9	10	47½	112	61½	18
60	Shri Ramsarup Singh	.	.	.	67	53	52	106	71	9	59	56	118	68	14
61	Shri Om Prakashbha	.	.	.	68	56	56	112	65	10	58	60½	119½	82	14
62	Shri Deshrajbhai.	.	.	.	60	58½	56	114½	60	10	77	56	133	65	14
63	Shri Vijaysingh	.	.	.	63	48	48	96½	50	12	56	59	115	93½	14
64	Shri Bhopal singh	.	.	.	69	50½	49½	100	64½	9	21½	50½	60	100½	63
65	Shri Jayshankar Mishra	.	.	.	56	56	51	107	80	12	22½	60	55½	125½	72
66	Shri Harhal Singh	.	.	.	53	50	48	98	57	9	43	42	185	49	14
67	Shri Mahabir Singh	.	.	.	60	54½	54½	105½	57	10	55	56	111	66	14
68	Shri Ishwar Singh	.	.	.	63	60	60	120	46	12	90	66	126	67½	16
69	Shri Budh Singh	.	.	.	43	50½	42½	93	28	8	66½	66	133	52	14
70	Shri Chandra Pal	.	.	.	47	49	48½	107½	60	10	45	52½	55	107½	77
71	Shri Ram Chandra	.	.	.	57	52	49	101	48½	12	56	51½	107½	63	14
72	Shri Vidhyamber	.	.	.	56	43	39	82	17	10	107½	33	39	72	28
73	Shri Raghuvir Prashad	.	.	.	62	44	52½	96	56	8	7½	51	58½	100½	82
74	Shri Devendrakumar	.	.	.	62	42	50	92	49	10	56	56	112	58	16
75	Shri Khubi Ram	.	.	.	66	55	52	107	82	10	55	60	118	75	16
76	Shri Raghuram Sharma	.	.	.	53	53	68	120	38	14	56	44	100	48	14
77	Shri Morarilal	.	.	.	56	52	58	110	34	14	56	44	100	48	14
78	Shri Kanaiyalal	.	.	.	53	47½	45½	87	48½	14	41	22	63	60	14
79	Shrimati Usha Kumari	.	.	.	.	.	.	.	.	.	70	22	92	16	12
TOTAL													8068 5158		

Name of Parishramalaya : Kaudiya Ganj (U.P.)

Date of Starting : 13-1-56 Number of Charkha sets : 19

Serial No.		Name of Operative	Class of Spinner	No. of days of Trg.	From 10th March, 56 to 27th March, 56										From 28th March 56 to 14 April, 56																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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		Age-Sex													
21	Suraipal	21 M	64	43	42½	85½	60	12	35	24	26	50	46½	12	40
22	Rajpal	19 M	57	32	27½	59½	30	8	20	12	18	30	14	8	25
23	Rev	20 F	58	44	33	77	60	12	40	22	24	46	49½	16	20
24	Manohar I	24 M	64	29½	30½	60½	38	8	30	32	20	52	44½	10	20
25	Narayan	20 M	62	34	30½	64½	40½	9	20	20	16	36	18½	10	15
26	Dehraj	25 M	60	30	22	52	39	12	20	14	20	34	36	20	20
27	Manhorlal	20 M	60	42	30	72	40	10	15	24	16	40	25	12	15
28	Rajpal II	18 M	62	38½	39	77½	44	16	23	44	37	81	37½	12	40
29	Prakashchandra	19 M	58	37	33	70	38½	10	23	38½	36½	75½	40	9	20
30	Dharmvir	18 M	60	42½	40	82½	59	20	3	28½	31	59½	39	14	20
31	Bhavat Dayal	24 M	55	34	43½	77½	45	12	30	44	37	81	45	14	30
32	Charansinh	18 M	59	38½	31	69½	52	10	40	47½	36	83½	60½	14	40
33	Kishorilal	20 M	61	28½	42½	70½	35½	9	33	28½	31	59½	41	14	43
34	Laladhar	23 M	57	39½	38½	76½	61½	12	30	38½	36½	75	48	12	23
35	Om Prakash I	21 M	45	34	43½	77½	2	10	10	..	..	..	..	..	..
36	Rushikumar	19 M	42	37½	33	70½	33	8	20	47½	36	83½	53	14	23
37	Pannalal	18 M	55	42	30	72	44	16	30	24	16	40	15	8	20
TOTAL												2,015	1,551		

Name of Parishramalaya: Aligarh (U.P.) (Incomplete)

Date of Starting: 13-1-56 Number of Charkha sets:

S. No.	Name of Operative	Class of Spinner	No. of days of Trg.	From 10th March, 56 to 27th March, 56												From 28th March, 56 to 13th April, 56																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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				Car- ding	Spg.	Total	Pro- dn. hanks	Count	Loss Tolas	Card- ing	Spg.	Total	Pro- dn. hanks	Count	Loss Tolas	Card- ing	Spg.	Total	Pro- dn. hanks	Count	Loss Tolas																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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Name of Parishramtalaya : Raipur (U.P.)			Date of Starting 19-1-56			Number of Charkha sets : 19										
			From 10th March 56 to 27th March 56			From 28th March 56 to 13th April 56										
S. No.	Name of operative	Class of Spinner	No. of days of Trg.	Duration of work (Hours)			Duration of work (Hours)									
				Card- ing	Spg.	Total Prodn. banks	Count banks	Loss Tolas	Card- ing	Spg.	Total Prodn. banks	Count banks	Loss Tolas			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Age Sex																
1	Baburambhai	.	67	55	54	109	77	10	34	40	40	80	64½	12	30	
2	Viren	.	71	54	50	104	57	10	20	59	59	118	95	12	90	
3	Brahmsinh	.	71	45	51	96	71	12	30	62	64	126	64	14	30	
4	Brahmati	.	67	54	50	104	48	12	18	57	50	107	53	15	19	
5	Rabidatt	.	69	50	52	102	75	10	37	49	45½	94½	61	12	30	
6	Bhupsinh	.	70	52	54	106	77	10	33	55	50	105	64	12	26	
7	Ramkrishna	.	67	56	57	113	59	10	26	40	40	80	79	11	20	
8	Udaysinh	.	63	57	58	115	99	12	41	16	22½	38½	30	12	10	
9	Mankiram	.	66	56	57	113	87	12	35	52	52	104	83	11	35	
10	Sarafrajsinh	.	70	58	59	117	120	13	45	48	47	95	71	14	35	
11	Sadhuram I	.	67	54	50	104	71	15	25	79	46	125	88	15	20	
12	Sumdatt	.	69	56	58	114	99	15	33	42	36½	78½	88	14	20	
13	Begam	.	70	59	56	116	87	14	31	49	43½	92½	86	14	30	
14	Sumarchandra	.	70	52	52	104	98	14	36	48	47	110	93	15	27	
15	Chhatrasinh	.	66	54	54	103	54	10	26	49	45	94	42	13	20	
16	Rikhiram	.	69	50	53	103	54	10	26	49	45	94	42	11	30	
17	Pavansinh	.	71	50	59	119	80	13	32	50	52	102	80	11	35	
18	Jagdishprasad	.	66	40	45	85	54	12	31	42	36½	78½	65½	13	20	
19	Yaspal	.	66	54	53	107	58	14	21	43	42	85	65	13	20	
20	Jaypal	.	71	58	59	117	76	13	29	54	53	107	64	12	20	

[illegible]

Name of Parishramalaya : Muradabad. (U.P.)

From 10th March to 27th March '56 From 28th March to 13th April, '56

S. No.	Name of operative	Class of Spinner	No. of days of Trg.	Duration of work (Hours)			Duration of work (Hours)			Duration of work (Hours)			Duration of work (Hours)			Loss Tolas
				Car- ding	Spg.	Total	Car- ding	Spg.	Total	Car- ding	Spg.	Total	Car- ding	Spg.	Total	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
		Age Sex														
1	Shushilkumarbhai	. 19 M	94	52	52	104	62	14	11	62½	52½	125	85	14	8	
2	Raghuvarsinh	. 20 M	94	38½	40½	79½	52	13	14	57½	50½	108	107	13	15	
3	Ram Avtar Singh	. 18 M	86	14½	45	89½	48	15	10	56½	52	108½	56½	15	11	
4	Shri Charansinh	. 24 M	67	18	14	32	12½	13	1	..	41	..	..	..	..
5	M. Yamin	. 20 M	83	29½	30½	60½	53	20	10	38½	46½	85	60½	17	8	
6	Purshotam	. 19 M	11	..	..	..	..	..	..	..	..	..	..	..	..
7	Rameshchandra	. 18 M	86	53	49½	102½	36	12	10	35	66½	101	61½	13	17	
8	Jagdishprasad.	. 20 M	94	86½	86½	172½	92	15	16	83½	46½	89½	106	16	16	
9	Bhupalsinh	. 19 M	85	47½	41½	89	43½	13	13	47½	46½	97	91	18	16	
10	Chandraswarup	. 22 M	92	44	45½	89½	60	13	13	46½	55	101½	78½	13	44	
11	Ganeshchandra	. 20 M	56	..	..	..	..	..	..	..	..	..	..	..	..
12	Rameswarprasad	. 22 M	92	46	49½	95½	64	13	13	58½	59½	118	97	13	18	
13	Zarphanhusen	. 20 M	81	45½	49	94½	39½	13	7	63½	58½	122	65	15	10	
14	Om Prakash Sharma I	. 20 M	70	47½	48½	96	43	12	9	..	..	..	..	..	..
15	Devidas Varma	. 20 M	89	47½	45½	89	60	14	17	50½	50½	101½	50	14	16	
16	Rajendraprasad	. 21 M	91	49	49	98	14	14	10	54	55½	109½	76½	15	12	
17	Rampalsinh	. 20 M	91	52½	42½	95½	66	12	16	45½	49½	95½	87½	13	16	
18	Jirajsinh	. 19 M	84	45½	48	93½	45½	13	8	54	67	121	67½	14	8	
19	M. Yusuf	. 18 M	82	33½	36½	70	39	14	8	24½	53½	77½	50	13½	10	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Age Sex													
20	M. Nazar	. 20 M	90	49½	49½	99	60	12	16	59½	101	100½	101	12½	20
21	Harishchandra	. 24 M	91	43½	43	86½	41	14	8	63	53	110	51½	15½	9
22	Om Prakash	. 25 M	92	48½	47½	96	43	14	11	65½	57½	114	94½	14	14
23	Chhotesinh	. 20 M	89	49	46	55	68	13	14	52½	53	106½	11½	14	14
24	Ramkumar	. 22 M	16												
25	Rameshchandra	. 22 M	89	40½	49	89½	16½	13	11	65½	51	117½	87	13½	14
26	Shantiswarup	. 20 M	89	44½	39½	83½	27	13	5	55½	47½	93	26½	13	6
27	Yagnadatt	. 19 M	87	43½	37½	81	46	13	9	53½	56	106½	81	13	11
28	Pruthvisinh	. 20 M	88	35	41	76	58	13	12	44	49	93	77	14	14
29	Harprasad	. 21 M	81	46	41½	87½	34½	14	7	55½	51½	107½	46	15½	7
30	Yagneshwar	. 19 M	89	39	41½	80½	40	14	8	53½	55½	109	76	15	10
31	Mishrisinh	. 20 M	89	41½	44	85½	69	14	13	48	51	99	77	15	14
32	Makardhvaj Tyagi	. 28 M	83	42	57	79	53	13	10	43½	49	92½	70½	13½	13
33	Samiullah	. 21 M	80	41	38	79	34	14	7	37½	37½	75	99½	13½	11
34	Ramsinh	. 22 M	73	48½	49½	98	80	13	14	56	56½	112½	81	14	14
35	Rampal Singh	. 19 M	74½	42½	43	85½	69	14	13	51½	54	105½	57	14	12
36	Dilip Singh	. 20 M	74	51	40	99½	61½	13	12	58	54	112	77½	15	13
37	Amar Singh	. 20 M	74	45	52	97	63	13	16	51	66½	117½	88	14	19
38	Indrapal Singh	. 25 M	67	46½	45½	92½	58	15	13	52½	51½	104	93	14	13
39	Karansinh	. 20 M	72	46	49	95	48	14	10	54	68	122	87	14	15
40	Jairam Sharma	. 20 M	72	48½	51	99½	68	18	12	51½	58½	110	87½	15	13
41	Nihal Singh	. 20 M	72	50½	46	96½	46	14	8	61½	58½	120	52½	14	9
42	Devindra Prasad	. 20 M	73	49	50	99	72	13	16	57½	64½	122	95	14	18
43	Jayprakash	. 22 M	67	40	45	85	39½	12	8	55½	53	108½	50½	13	9
44	Pritam Singh	. 21 M	65	45½	40	85½	53	13	12	59½	61½	121	80	14	14
45	Satyaprakash	. 19 M	43	8	8	16	2	12	1						

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
75	Shishupal	.	.	.	.	.	.	.	.	.	.	.	.	.	.
76	Rameshanker	.	.	.	.	.	.	.	.	.	.	.	.	.	.
77	Ram Avtar	.	.	.	.	.	.	.	.	.	.	.	.	.	.
78	Anarasingh	.	.	.	.	.	.	.	.	.	.	.	.	.	.
79	Kishanlal	.	.	.	.	.	.	.	.	.	.	.	.	.	.
80	Ram Machchal	.	.	.	.	.	.	.	.	.	.	.	.	.	.
81	Raghuvir Saran	.	.	.	.	.	.	.	.	.	.	.	.	.	.
82	Vireshvi Prasad	.	.	.	.	.	.	.	.	.	.	.	.	.	.
83	Lalitprasad	.	.	.	.	.	.	.	.	.	.	.	.	.	.
84	Raghuvir singh	.	.	.	.	.	.	.	.	.	.	.	.	.	.
85	Omprakash	.	.	.	.	.	.	.	.	.	.	.	.	.	.
86	Kedarsingh	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Total															8,961 4,886

Number of Charkha sets :

345

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Age Sex													
21	Sri Lilasingh	. 22 M	79	52½	52½	105	115	11	49½	38	87½	111	11		
22	Sri Ram Kishore	. 23 M	79	60	52½	115½	80	12	58½	49	107½	75	12		
23	Sri Samusingh	. 23 M	79	53½	52½	106	72	13	50	44½	94½	80	13		
24	Sri Bhopalsingh	. 21 M	77	51	50	101	94	14	51	56	107	91	14		
25	Sri Sagarsingh	. 21 M	75	54½	49	103½	80	14	58	44½	102½	84	14		
26	Sri Hari Dutt	. 20 M	77	56	56½	112½	100	15	55½	153	108½	107	14		
27	Sri Dharamsingh	. 20 M	78	52½	53½	106	91	12	51½	53	104½	85	12		
28	Sri Hukamsingh	. 25 M	76	58½	56½	115½	85	13	59½	56½	115½	98	13		
29	Sri Budhri Prakash	. 20 M	81	49	48½	97½	12	12	53	53	106	86	12		
30	Sri Satya Prakash	. 20 M	81	53	49½	102½	102	14	54	52½	106½	100	13		
31	Sri Balirsingh	. 22 M	81	59	57	116	91	14	60	58	118	99	12		
32	Sri Dineshchandra	. 20 M	73	56½	58½	115½	85	13	44	46	90	77	14		
33	Sri Radheshyam	. 20 M	77	57	57	114	76	16	56	60	116	91	14		
34	Sri Devindrasingh	. 20 M	78	53½	52½	106	88	16	56	55	111	97	11		
35	Sri Narashchandra	. 22 M	77	55	58	113	92	14	53	58	113	82	13		
36	Sri Mangasingh	. 22 M	78	51½	51½	103½	61	13	51	54	105	79	10		
37	Sri Bhagirath	. 22 M	81	56	53½	109½	90	13	60	60	120	100	13		
38	Sri Krushirambhai	. 24 M	62	50	49	99	53	12	45	46½	81½	45	14		
39	Sri Nareschandra	. 19 M	64	45	43	88	89	10	49	44	94	84	13		
40	Sri Pravin	. 21 M	68	60	59	119	78	12	45	43	88	80	16		
41	Sri Bharatsingh	. 20 M	67	48½	44	94	56	10	44	44	88	56	14		
42	Sri Umrao	. 22 M	65	56½	56½	122½	88	11	46½	46	92½	99	14		
43	Sri Krishnabhai	. 20 M	65	51	48	99	63	11	46½	65	102½	58	13		
44	Sri Balkaran	. 22 M	59	48½	48½	97½	92	12	36	39	75	84	15		
45	Sri Nirmalbhai	. 19 M	64	54	50½	105½	92	12	46	44	90	84	15		
46	Sri Manoharlalbhai	. 19 M	66	52	53	105	73	12	51	53	104	68	14		

47	Sri Ramavatar	.	.	.	.	20M	66	55	53	108	75	11	46	59	105	78	13
48	Sri Puranbhai	.	.	.	.	22M	64	48½	46½	95	86	12	46½	44½	91	78	13
49	Sri Vachaspati	.	.	.	.	20M	62	29½	32	61½	60	15	51	46	97	92	18
50	Sri Sirendrabhai	.	.	.	.	19M	55	51	46	97	75	10	42½	40	82½	87	14
51	Sri Khyamewarup bhai	.	.	.	.	20M	58	42	40½	82½	75	12	55	45	100	63	13
52	Sri Jaymal	.	.	.	.	21M	61	35½	46	81½	56	13	42½	54	96½	73	14
53	Sri Manavirbhai	.	.	.	.	22M	62	60	56½	116½	62	9	58	46	104	75	18
54	Sri Haridutt	.	.	.	.	24M	59	48	46	94	58	12	46	57	103	55	11
55	Sri Devisingh	.	.	.	.	22M	60	60	55	115	106	11	59	46	105	87	14
56	Sri Mahipal	.	.	.	.	19M	58	45½	55	100½	79	14	47½	51	98½	72	13
57	Sri Mugvant	.	.	.	.	20M	64	50½	49½	99½	73	11	40	36½	76½	66	12
58	Sri Rajpal	.	.	.	.	21M	61	51	54½	105½	75	13	51	50½	101½	76	14
59	Sri Radheshyam	.	.	.	.	19M	61	56	56½	102½	52	10	38	38½	76½	56	10
60	Ram Kumar	.	.	.	.	20M	56	52½	48	100½	64	10	39	33	72	40	12
61	Jaswant	.	.	.	.	21M	50	38	38	76	35	10	38½	35½	64	74	12
62	Dialbithari	.	.	.	.	19M	58	48	48½	99½	71	11	55½	49½	105	63	10
63	Hari Singh	.	.	.	.	25M	58	49	51	100	70	11	43	36	89	69	13
6	Rohilal	.	.	.	.	22M	50	35	47	92	69	10	39½	37½	77	42	14
65	Babu Ram	.	.	.	.	19M	57	38½	49	97½	75	10	58	34	92	78	1
66	Data Ram	.	.	.	.	20M	64	57	53½	100½	64	10	45	45	90	62	15
67	Teek Chander	.	.	.	.	21M	57	59½	49	108½	81	10	55½	55½	111	54	14
68	Sham Singh	.	.	.	.	20M	58	60	55	115	72	10	58	57	115	78	14
69	Chander Pal	.	.	.	.	21M	53	57	55	112	72	11	53	53	106	71	14
70	Ram Kumar	.	.	.	.	20F	33	46	46	92	67	11	18	18	37	23	14
71	Jagdish	.	.	.	.	30M	55	60	59	119	72	12	58	55	117	78	12
72	Ram Gopal	.	.	.	.	19M	51	50	51½	110½	68	10	56	49	105	75	15
73	Kundan	.	.	.	.	25M	52	51½	50½	102	62	10	46½	45	92½	69	15
74	Sira Ram	.	.	.	.	22M	37	57	55	112	69	10	55	53	108	51	13
75	Naresh	.	.	.	.	10M	50	39	48½	87½	76	12	56	53	109	66	15

Name of Parishramalaya :

SIMARI Madhubani (Bihar)

No. of charkha sets: 24

Date of starting : 8-1-56 |

S. No	Name of Spinner	Class of Spinner	No. of days of trg.	From 10th March, 56 to 27th March, 56					From 28th March, 56 to 13th April, 56						
				Duration of work (Hours)					Duration of work (Hours)						
				Card-ing.	Spg.	Total	Pro-duc-tion hanks	Count	Loss	Card-ing	Spg.	Total	Pro-duc-tion hanks	Count	Loss
Totas															
Age Sex															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Scheswar Jha	24 M	77	45	52	97	104½	20	31½	36	36	72	65½	20	15
2	Yogeshwar Mahro	25 M	79	36	36	72	79	16	43	56	56	112	108	9	31½
3	Kusheshwar Thakur	30 M	84	46	56	102	109	20	31½	60	60	120	200	16	47
4	Laladhar Jha	30 M	79	54	45	99	72½	16	26½	64	56	120	69½	20	20
5	Ramkheivan Mehta	24 M	80	37	34	71	74	..	42	60	60	120	111	16	10½
6	Markande Jha	20 M	83	54	59	113	126½	..	49	60	60	120	173½	20	45
7	T. Thakur	28 M	84	44	47	91	98	..	31½	64	56	120	95	16	25
8	Shobhakant Thakur	21 M	84	51	45	96	75	14	30	60	60	120	83	16	25
9	Hejari Mehta	21 M	84	54	54	108	129	20	43	60	60	120	132	9	35
10	Rameshwar Mehta	24 M	84	54	54	108	129	..	41½	60	60	120	133	9	35
11	Baldev Yadav	18 M	83	50	50	100	97½	16	33	56	56	112	106	16	30
12	Ramswarup Mehta	19 M	83	50	50	100	97½	..	33½	56	56	112	107	16	30
13	Bhagirath Jha	22 M	84	44	59	103	126½	20	30	60	60	120	167½	20	45
14	Asrafi Yadav	21 M	83	44	49	93	96½	16	49½	60	60	120	97½	16	25
15	Kapileshwar Malli	24 M	63	45	42	87	56	12	23½	60	60	120	64	14	20
16	Sankhi Yadav	28 M	84	49	56	105	106	25	16½	60	60	120	115½	25	30

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Age Sex													
17	Jagdev Yadav . . .	. . . 25 M	84	49	56	105	106	..	17	60	60	120	115½	25	30
18	Ugra nath Jha . . .	. . . 23 M	83	55	54	109	77	20	16½	56	56	112	87	25	25
19	Suryanaran Jha . . .	. . . 30 M	84	53	54	107	81	20	22½	60	60	120	83	20	25
20	Kamalkant Jha . . .	. . . 18 M	83	49	38	88	65	14	30	60	60	120	120	14	40
21	Vrikishore Jha . . .	. . . 23 M	84	48	51	99	65	20	11½	60	60	120	60½	20	15
22	Sitaram Jha . . .	. . . 25 M	84	48	51	99	64	..	10	64	56	120	58½	9	15
23	Chandranarayan Mishra	. . . 22 M	81	46	40	86	49	16	15	64	56	120	62	20	20
24	Rajendra Mishra . . .	. . . 18 M	84	51	53	104	68	..	30	60	60	120	108	16	35
25	Yogeshwar Yadav . . .	. . . 25 M	83	56	44	100	51½	25	20	64	56	120	108½	25	28
26	Sinteshwar Yadav . . .	. . . 22 M	77	44	44	88	51½	25	20	60	60	120	120½	25	32
27	Abudhnanarayan Dass	. . . 24 M	73	43	29	72	36½	14	13	40	40	80	44	16	15
28	Laxmikant Dass . . .	. . . 22 M	68	49	35	84	44½	14	18	44	44	88	34	16	15
29	Abhaykumar Dass . . .	. . . 20 M	63	48	41	89	51½	12	12	4	4	8	3	16	2
30	Yogendra Jha . . .	. . . 19 M	75	52	45	97	56½	12	13	28	28	56	29	16	8
31	Baualal P. . . . .	. . . 18 M	70	27	24	51	28	12	11½	28	28	56	21	16	10
32	U. Chaudhary . . .	. . . 24 M	84	57	48	105	76½	16	32½	60	60	120	72½	20	25
33	Premalal Mishra . . .	. . . 20 M	77	35	28	63	44	16	16½	60	60	120	68	20	15
34	Laxmikant Jha . . .	. . . 31 M	78	46	38	84	57	14	25	44	44	88	59	16	20
35	Sushila Devi . . .	. . . 20 F	84	59	53	112	113½	20	48½	60	60	120	146	20	20
36	Bhivikiya . . . . .	. . . 25 M	84	48	47	95	74½	16	31½	60	60	120	76	16	20
37	Mudrika Devi . . .	. . . 25 F	83	58	42	100	64	14	35	60	60	120	79	16	30
38	Janki Devi . . . . .	. . . 30 F	84	56	54	110	92	14	32½	64	56	120	106	16	35
39	Savitri Devi¹ . . .	. . . 30 F	83	44	34	78	43	14	28½	60	60	120	49	16	15
40	Nagadamba Devi . . .	. . . 33 F	84	66	46	112	115	14	47½	60	60	120	132	16	40
41	Gujeshwari Devi . . .	. . . 32 F	84	60	45	105	93½	14	25	60	60	120	101½	20	30
42	Subadhi Devi . . .	. . . 35 F	84	60	45	105	93½	14	25	60	60	120	101½	20	30

43	Jay Devi	.	.	.	.	.	81	53	49	102	75	20	20	56	56	112	79	20	
44	Sebji Devi	.	.	.	.	.	84	48	46	94	79½	20	18	60	60	120	101	20	
45	Rasmati Devi	.	.	.	.	.	84	46	45	91	61½	20	13½	60	60	120	95	25	20
46	Munte Tanti	.	.	.	.	.	62	53	49	102	75	20	20	60	60	120	85	20	25
47	Bliss	.	.	.	.	.	61	50	48	98	84	16	22½	48	48	96	69	16	20
48	S. Chutiam	.	.	.	.	.	62	50	48	98	84	16	22½	56	56	112	69	16	20
49	Bajni Devi	.	.	.	.	.	18	..	..	..	..	..	..	..	..	..	..	..	..
50	Malikant Jha	.	.	.	.	.	14	..	..	..	..	..	..	..	..	..	..	..	..

TOTAL . . . 5356 4366

Name of Parishramalaya : Hajipur,
Post : Samaila Lai Ganj, Madhubani (Bihar)

No. of Charkha [Sets : 20

S. No.	Name of spinner	Class of Spinner	No. of days of trg.	From 10/3/56 to 27/3/56										From 28/3/56 to 13/4/56										Loss Totals
				Duration of work (Hours)										Duration or work (Hours)										
				Card- ing	Spg.	Total	Pro- duc- tion hanks	Count	Loss Totals	Card- ing	Spg.	Total	Pro- duc- tion hanks	Count	Loss Totals									
1	2	3		4	5	6	7	8	9	10	11	12	13	14	15	16								
			Age Sex																					
1	Ramvilas P. Singh	.	.	83	45	45	90	45	16	15	45	45	90	79	16	22½								
2	Surendra P. Singh	.	.	83	45	45	90	45	16	15	45	45	90	79	16	22½								
3	Padmakar Mishra	.	.	83	45	45	90	55	16	17½	46	44	90	56	15	15								
4	Mustak Ahmed	.	.	82	45	45	90	55	16	17½	46	44	90	56	15	15								
5	Laxmikant Bhagat	.	.	83	45	45	90	119	16	35	47	43	90	69	12	20								
6	Nagindra P. Singh	.	.	70	18	16	36	23	15	7½	33	33	40	40	10	10								
7	Ramjiven Mishra	.	.	82	45	45	90	45	16	15	45	45	90	84	14	23								
8	Gangadev Jha	.	.	80	45	45	90	67	14	20	33	33	66	58	16	15								
9	Chitranjiv Mishra	.	.	82	45	45	90	66	14	30	45	45	90	73	13	25								
10	Ganesh Bhagat	.	.	82	45	45	90	66	14	20	45	45	90	63	12	24								
11	Laxmi Sodu	.	.	83	45	45	90	60	14	17½	45	45	90	96	12	30								
12	Ramvilas Pajjar	.	.	83	45	45	90	75	14	22½	45	45	90	69	12	21								
13	Yogendra P. Shah	.	.	83	45	45	90	68	14	20	45	45	90	105	12	35								
14	Ram P. Shah	.	.	50	..	..	..	..	..	..	..	..	..	..	..	..
15	Ramnarayan Shah	.	.	81	45	45	90	76	14	25	45	45	90	106	12	34								
16	Sukhdev Singh	.	.	79	45	45	90	51	56	15	46	45	90	126	16	40								
17	Yogendra Mandal	.	.	80	45	45	90	45	16	15	46	44	90	109	16	31								
18	Laldhari Mandal	.	.	73	45	45	90	45	16	15	42	36	78	99	16	30½								

19	Ragunath Mandal	.	.	.	22 M	83	45	45	90	88	18	22½	45	45	90	69	16	46
20	Remavtar Mandal	.	.	.	25 M	83	45	45	90	88	18	22½	45	45	90	60	16	46
21	Harilal Yadav	.	.	.	18 M	82	45	45	90	52	12	17½	46	44	90	89	10	30
22	Ram Singh Yadav	.	.	.	22 M	82	45	45	90	63	12	20	45	45	90	80	10	23
23	Gukulanand Jha	.	.	.	22 M	80	45	45	90	45	16	15	45	45	90	95	12	20
24	Devendra Jha	.	.	.	21 M	80	45	45	90	45	16	15	45	45	90	69	10	15
25	Parmeshwar Jha.	.	.	.	30 M	81	48	27	75	27	10	7½	54	30	84	16	10	8
26	V.N. Laldas	.	.	.	20 M	82	45	45	90	47	12	17½	45	45	90	102	10	28½
27	Sahdev Singh	.	.	.	20 M	76	45	45	90	61	14	20	39	39	78	52	14	20
28	Sukhdev Mahato	.	.	.	28 M	83	45	52	97	77	18	25	45	45	90	70	19	17½
29	Ramparkha Das	.	.	.	28 M	83	52	52	104	87	16	25	45	45	90	90	16	25
30	Ganga P. Singh	.	.	.	23 M	75	28	13	41	13	10	5	46	42	88	39	8	15
31	Kusheshwar Chaudhary	.	.	.	22 M	72	45	45	90	26	10	7½	17	13	30	14	10	2½
32	Vavan Kumar Tiwari	.	.	.	25 M	81	46	45	91	51	8	17½	45	45	90	114	10	41
33	Shrimati Kalavati Devi	.	.	.	35 F	83	45	45	90	67	8	20	45	45	90	93	8	30
34	Shrimati Sudama Devi	.	.	.	45 F	81	45	45	90	58	8	12½	39	39	78	93	8	22½
35	Shrimati Jognmaya Devi	.	.	.	25 F	83	45	45	90	57	8	22½	45	45	90	107	8	41
36	Shrimati Savitri Devi	.	.	.	50 F	83	45	45	90	57	8	22½	42	42	84	100	8	37½
37	Shrimati Son Dai	.	.	.	26 F	81	59	32	92	39	10	15	52	38	90	41	10	17½
38	Shrimati Bacha Dai	.	.	.	30 F	82	45	45	90	76	10	22½	45	45	90	93	10	25½
39	Shrimati Girja Devi	.	.	.	28 F	81	60	26	86	26	8	10	46	30	76	26	8	1
40	Shrimati Radha Devi	.	.	.	30 F	83	42	42	84	49	8	17½	46	44	90	62	8	2

TOTAL

3338 2932

Name of Parishramalaya :

Sambalpur Darbhanga (Bihar)

Date of Starting : 5-1-56

Number of Charikha sets : 20

S. No.	Name of operative	Class of Spinner	No. of days of attendance	From 10-3-56 to 27-3-56				From 28-3-56 to 13-4-56				Total Prodn. hanks	Counts	Loss Tolas		
				Duration of work (hours)				Duration of work (hours)								
				Card- ing	Spng.	Total Pro- duct- ion hanks	Count	Loss Card- ing Tolas	Spng.	Total Prodn. hanks	Counts				Loss Tolas	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Age Sex																
1	Janki Devi	.	.	75	31	42	73	70	16	35	59	25	84	43	16	15
2	Suryalal Devi	.	.	77	46	44	90	69	14	34	62	39	101	74	14	20
3	Gayatri Devi	.	.	80	41	61	102	101	14	60	59	45	104	96	16	40
4	Bhagavan Devi	.	.	78	43	61	104	105	14	60	59	50	109	114	16	40
5	Seetha Devi	.	.	75	45	41	86	69	14	32	63	42	105	83	16	30
6	Savithri Devi	.	.	74	38	59	97	102	16	50	55	51	101	104	14	45
7	Rampyari Devi	.	.	74	48	45	93	75	16	36	56	30	86	63	14	15
8	Leela Devi	.	.	71	44	42	86	66	14	30	63	42	105	87	16	35
9	Yasodha Devi	.	.	83	52	43	95	68	14	35	48	29	77	61	16	25
10	Kowsalaya Devi	.	.	68	54	49	98	49	14	25	39	65	104	130	16	50
11	Ramakowari Devi	.	.	85	34	45	79	67	18	30	50	31	81	59	16	20
12	Foolkuari Devi	.	.	84	45	41	86	65	18	35	53	40	93	52	16	20
13	Attar Devi	.	.	83	52	43	96	67	14	35	52	32	84	62	14	30
14	Sushilla Kuanwar	.	.	82	54	41	99	69	16	35	56	36	89	69	16	30

13	Propada Devi	52	F	85	31	51	102	84	15	45	49	44	16	89	16	40
16	Tarakumari	13	F	84	55	40	95	69	14	35	56	38	84	94	14	35
17	Sudama Devi	24	F	85	48	45	93	69	16	30	64	33	97	64	16	25
18	Gita Kuanwari	13	F	34	50	48	88	62	16	30	62	35	97	88	16	30
19	Savithri Devi	32	F	80	53	46	99	69	16	35	60	31	95	84	16	30
20	Rhrushri Kaunwari	13	F	81	44	45	89	68	14	40	58	36	94	76	14	30
21	Kanji Kuanwari	11	F	74	48	39	87	40	14	20	36	64	100	144	41	60
22	Varila Nisha	12	F	74	49	34	83	46	14	22	47	57	102	124	14	50
23	Devaki Kuanwari	13	F	84	48	39	87	63	14	40	48	28	70	65	14	25
24	Ramkeshi Devi	13	F	74	43	32	75	45	14	20	60	45	105	139	14	60
25	Sona Devi	34	F	74	48	38	86	48	14	25	54	52	106	26	14	50
26	Rashvathi Devi	16	F	75	58	44	102	61	12	30	60	48	98	104	14	40
27	Kapil Devi Thakur	22	F	75	51	54	105	120	14	70	36	7	43	7	14	2
28	Mohal Takur	24	M	75	43	53	96	113	14	65	51	99	60	24	14	15
29	Hari Chand Chaudhery	24	M	65	42	64	106	105	14	55	61	29	90	69	16	25
30	Hira Lal Das	20	M	81	48	41	89	62	14	30	62	12	184	94	16	35
31	Jagannath Upadhya	20	M	83	48	62	110	109	14	55	42	36	78	77	16	30
32	Nokhelal Mehta	29	M	82	48	53	101	91	14	45	52	46	98	122	16	50
33	Sriram Upadya	25	M	83	44	53	97	92	14	45	63	41	104	98	16	40
34	Krishnan Dev Singh	25	M	75	35	38	73	75	14	40	59	36	95	89	16	35
35	Maheswar Saha	25	M	78	49	62	111	138	16	70	60	35	105	116	11	40
36	Ramavathar Singh	18	M	79	52	51	103	83	14	45	63	39	102	84	11	30
37	Ramasran Karan	25	M	75	50	60	110	74	16	35	56	56	112	92	16	35
38	Upendra Jha	16	M	74	51	49	100	112	16	60	56	42	98	146	16	50
39	Nageshar Singh	25	M	74	44	51	95	81	14	40	54	46	100	102	16	40
40	Vaidyanath Singh	25	M	71	43	52	95	81	14	40	43	44	87	108	16	14

TOTAL

3656 3414

13	Muktheshwaridevi	.	.	13 F	704	50	38	88	90	14	32	60	36	96	100	14	33
14	Jankidevi No. 2	.	.	35 F	724	63	49	112	115	14	41	60	36	96	100	14	35
15	Jankidevi No. 3	.	.	24 F	724	62	46	108	110	14	40	70	42	112	100	14	53
16	Vedamidevi	.	.	38 F	76	56	40	96	100	14	35	70	50	120	130	14	43
17	Sundridevi	.	.	25 F	73	50	30	80	90	14	32	70	50	120	133	14	44
18	Vihambidevi	.	.	18 F	80	70	60	120	125	14	45	70	50	120	135	14	45
19	Indrashandevi	.	.	20 F	81	70	50	120	125	14	45	70	50	120	135	14	45
20	Valantidevi	.	.	20 F	81	70	50	120	125	14	45	70	50	120	135	14	45
21	Shantidevi	.	.	23 F	76	67	53	120	120	14	14	64	40	104	100	14	35
22	Amisaila	.	.	33 F	78	67	53	120	120	14	14	70	50	120	120	14	45
23	Shanti Murnur	.	.	27 F	544	14	20	34	32	14	11	..	..	..	..	..	..
24	Sumitradevi No. 2	.	.	19 F	44	..	..	..	..	..	..	..	..	..	..	..	..
25	Sumitradevi No. 3	.	.	30 F	79	67	53	120	120	14	14	70	50	120	120	14	45
26	Shantidevi	.	.	32 F	..	45	35	80	80	14	30	70	50	120	120	14	45
27	Sumitradevi No. 1	.	.	35 F	43	..	..	..	..	..	..	..	..	..	..	..	..
28	Parvatidevi	.	.	18 F	60	..	..	..	..	..	..	..	..	..	..	..	..
29	Radhibadevi	.	.	25 F	38	70	50	120	70	12	35	70	50	120	120	12	50
30	Kusumkumari	.	.	15 F	38	70	50	120	80	12	35	70	50	120	120	12	50
31	Fulbandardevi	.	.	27 F	35	56	40	96	70	12	25	70	50	120	80	12	35
32	Khabasuridevi	.	.	27 F	35	56	40	96	60	12	25	70	50	120	80	12	35
33	Ramdularidevi	.	.	27 F	38	70	50	120	72	12	30	70	50	120	80	12	35
34	Siyadevi	.	.	27 F	38	70	50	120	72	12	30	75	45	120	72	12	30
35	Vedamidevi	.	.	16 F	38	70	50	120	75	12	31	75	45	120	72	12	30
36	Girjadevi	.	.	30 F	38	70	50	120	75	12	31	75	45	120	82	12	35
37	Sitadevi	.	.	40 F	38	75	45	120	60	12	25	75	45	120	82	12	35
38	Kesharidevi	.	.	25 F	37	75	45	120	75	12	31	75	45	120	96	12	40
39	Ajnasodevi	.	.	38 F	37	20	12	32	16	12	5	75	45	120	96	12	40
40	Chantrakaladevi	.	.	23 F	38	70	50	120	60	12	25	70	50	120	70	12	30
41	Ramvatidevi	.	.	40 F	38	70	50	120	60	12	25	70	50	120	60	12	30

I	2		4	5	6	7	8	9	10	11	12	13	14	15	16
		Age Sex													
42	smt.	Sumitrakumari . . .	38	75	45	120	65	12	27	70	50	120	96	12	40
43	"	Sampatradevi . . .	38	75	45	120	75	12	31	70	50	120	96	12	40
44	"	Manidevi . . .	38	75	45	120	60	12	25	70	50	120	96	12	40
45	"	Ramkumaridevi . . .	35	64	40	104	50	12	22	70	50	120	96	12	40
46	"	Gayatridevi . . .	24½	56	36	92	50	12	22	24	24	48	48	12	20
47	"	Chandrakirabadevi . . .	34	56	36	92	50	12	22	75	45	120	100	12	41
												4772	4330	TOTAL	

6 M of Production.

S.No.	Name of operative	Class of Spinner	No. of days of Trg.	From 10th March 56 to 27th March 56 Duration of work (Hours)	Card- ing	Spg.	Total Prodn. hanks	Count hanks	Loss tolas	Card- ing	Spg.	Total Prodn. hanks	Count hanks	Loss tolas	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Age	Sex												
1	Sri Rameshwar Prasadsinh	15	M	81	35	25	60	55	12	25	40	20	60	55	12
2	Sri Nandi Pat Singh.	18	M	82	35	25	60	55	12	25	40	20	60	55	12
3	Sri Ramvilasinh.	18	M	78	30	22	52	48	12	20	36	20	56	50	12
4	Sri Rajnarayansinh.	14	M	75	35	25	60	53	12	21	32	20	52	45	12
5	Sri Ramsumdar Pandey.	16	M	71½	30	15	45	45	12	18	30	14	44	40	12
6	Sri Rajkumar Vasvan	15	M	64	20	16	36	33	12	12	25	15	40	36	12
7	Sri Ramnithora Jha	15	M	61½	35	25	60	15	12	20	30	14	44	36	12
8	Sri Jagatnarayan P. Singh	16	M	48	22	18	40	35	12	12	20	12	32	30	12
9	Sri Umashankar Jha.	16	M	76½	30	22	52	45	12	18	36	20	56	50	12
10	Sri Ramanand Prasadsinh.	15	M	69	20	12	32	35	12	12	32	20	52	45	12
11	Sri Nagendra Thakur.	18	M	71	30	25	55	35	12	12	32	20	52	50	12
12	Sri Ram Swarup Yadav	16	M	69	35	25	60	45	12	18	32	20	52	45	12
13	Sri Satyanarayan Prasadsinh.	17	M	53	25	19	44	38	12	15	13	7	20	24	12
14	Sri Devnarayan Jha.	14	M	79	30	22	52	55	12	22	40	20	60	55	12
15	Sri Sachidanand Jha	16	M	67½	30	26	56	53	12	21	36	20	56	53	12
16	Sri Arjun Thakur	17	M	59	30	26	56	53	12	21	40	20	60	55	12

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16					
17	Sri Dāchivalrav.	.	.	.	16	M	72	30	26	56	55	12	22	40	20	60	55	12	12	21
18	Sri Ramji Mahto	.	.	.	17	M	67	35	25	60	53	12	21	36	20	56	50	12	12	20
19	Sri Chandrabhushan Prasadsinh	.	.	.	18	M	74	35	25	60	53	12	21	38	22	60	60	12	12	25
20	Sri Ramvilasrai.	.	.	.	15	M	17													
21	Sri Nandkishor Pandey	.	.	.	18	M	74	30	22	52	35	12	12	30	14	44	40	12	12	16
22	Sri Shastiranjnprasad Verma.	.	.	.	13	M	60	30	26	56	52	12	20	8	4	12	12	12	12	5
23	Sri Yogilal Chaudhry	.	.	.	19	M	74	35	25	60	55	12	22	36	20	56	56	12	12	20
24	Sri Rajnarayan Mishra.	.	.	.	16	M	74	35	25	68	55	12	22	40	20	60	55	12	12	21
25	Sri Dharndev Sharma	.	.	.	19	M	70	20	12	32	30	12	13	8	4	12	12	12	12	5
26	Sri Manmohan Jha	.	.	.	16	M	60	20	16	36	50	12	20	30	26	56	50	12	12	20
27	Sri Manranjanprasad Verma	.	.	.	12	M	50	35	25	60	50	12	20	28	12	40	35	12	12	15
28	Sri Shivrath Jha	.	.	.	16	M	60	30	26	56	50	12	20	32	20	52	45	12	12	18
29	Sri Ramavallabh Jha	.	.	.	14	M	50	30	26	56	50	12	20	36	20	56	50	12	12	20
30	Sri Ramdavalprasad.	.	.	.	15	M	50	30	26	56	40	12	16	36	20	56	50	12	12	20
31	Sri Dhurendra Sharma	.	.	.	16	M	66	30	26	56	40	12	16	32	20	52	45	12	12	18
32	Sri Shivchandra Jha	.	.	.	16	M	60	30	26	56	40	12	16	20	16	36	30	12	12	13
33	Sri Chandinka Pandey	.	.	.	18	M	65	20	12	32	30	12	13	18	10	28	28	12	12	12
34	Sri Devnathsinh.	.	.	.	17	M	60	25	15	40	40	12	16	28	12	40	35	12	12	15
35	Sri Hemchandraasin.	.	.	.	17	M	65	12	8	20	30	12	13	30	18	48	40	12	12	16
36	Sri Upendra Thakur	.	.	.	16	M	60	30	26	56	50	12	20	32	30	62	45	12	12	18
37	Sri Rammandar Chaudhry.	.	.	.	18	M	70	30	18	48	45	12	18	30	18	48	45	12	12	18
38	Sri Vijaykumar Jha	.	.	.	18	M	70	20	12	32	30	12	13	36	20	56	50	12	12	20
39	Sri Ramnandarsinh.	.	.	.	16	M	70	35	25	60	60	12	25	40	20	60	60	12	12	25
40	Sri Ramnarayan Sharma	.	.	.	17	M	70	35	25	60	40	12	16	40	20	60	55	12	12	22
TOTAL													1906	1721						

S.No.	Name of Operative	Class of spinner	No. of days of Trg.	From 10th March to 27th March, 56 Duration of work (Hours)	Card- ing	Spg.	Total Prodn. hanks	Count	Loss tolas	Card- ing	Spg.	Total Prodn. hanks	Count	Loss tolas	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Age Sex													
1	Digamber Jha	. . . 22 M	67	78	42	120	50	25	18	42	38	80	43	25	13
2	Pitamber Jha	. . . 21 M	67	78	42	120	51	25	18	82	38	120	40	25	12
3	Mahesh Misra	. . . 22 M	67	76	44	120	52	20	13	84	36	120	39	25	10
4	Amir Lal Misra	. . . 22 M	67	76	44	120	46	16	15	81	39	120	44	20	13
5	Rajendra Jha	. . . 19 M	67	91	29	120	31	18	13	16	8	24	9	20	7
6	Ramprasad Rai	. . . 21 M	67	55	25	80		20	9		12	32	20	20	9
7	Kulanand Jha	. . . 22 M	67	75	45	120	49	20	17	81	39	120	25	20	19
8	Harikant Jha	. . . 24 M	67	75	45	110	32	18	14	82	38	120	69	18	21
9	Umakant Jha	. . . 22 M	67	74	46	120	48	20	14	88	32	120	39	20	15
10	Devendra Jha	. . . 22 M	67	78	18	96	15	18	6	16	8	24	16	18	11
11	Jayanandan Misra	. . . 29 M	67	77	43	120	48	20	16	89	31	120	49	20	17
12	Kapileshwardas	. . . 19 M	67	77	43	120	44	18	15	87	33	120	89	20	51
13	Shivprasad Chaudhry	. . . 20 M	67	78	42	120	42	20	15	86	34	120	67	20	45
14	Umakant Chaudhary	. . . 22 M	67	78	42	120	41	20	15	86	34	120	55	25	47
15	Shamsunder Jha.	. . . 21 M	67	30	15	45	13	20	7	12	6	18	9	25	7
16	Madhyavdas	. . . 22 M	67	75	45	120	47	20	16	82	38	120	55	20	35

Name of Parishramalya: Kapsiya DARBHANGA (Bihar)

No. of charkha sets:—20
Date of starting 6/1/56

S.S.No.	Name of Operative	Class of Spinner	No. of days of Trg.	From 10th March to 27th March, 56.				From 28th March to 13th April, 56.				Duration of work (Hours)			
				Card- ing	Spg.	Total Prodn hanks.	Count Loss tolas	Card- ing	Spg.	Total Prodn hanks	Count Loss tolas				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Age Sex													
1	Shri Anamulla	18 M	80	52	46	98	72	26½	15	54	50	104	76	16	27
2	Shri Shahid Busen	20 M	82	52	50	102	75	17	16	54	52	106	86	17	22
3	Shri Genesh Jha	25 M	79	56	55	111	75	16	20	55	50	105	112	16	32
4	Shri Krishna Ram Jha	18 M	98	55	54	109	65	15½	15	52	54	106	100	17	32
5	Shri Rudhranath Jha	40 M	84	56	60	116	75	19½	20	50	55	105	132	16	33
6	Shri Asbechandra Jha	31 M	80	58	55	113	77	18	20	55	55	110	133	17	33
7	Shri Chitranojan Chaudhry	38 M	84	56	54	110	75	18½	15	52	53	105	76	21	20
8	Shri Vaidyanath Jha	24 M	21	58	55	112	73	16½	17½	53	54	107	95	12	21
9	Shri Kameshwar Jha	18 M	80	55	56	114	66	15½	15	54	55	109	71	16	21
10	Shri Yaduvir Jha	28 M	82	58	54	109	66	15½	15	55	57	112	72	17	21
11	Shri Murlu Chaudhory	20 M	22	58	56	114	70	16	61½	55	59	114	79	16	20
12	Shri Kashikant Jha	32 M	79	55	54	109	60	15½	15	50	52	102	73	20	21
13	Shri Gopikant Jha	32 M	79	58	57	115	70	15½	17½	52	53	105	93	20	21
14	Shri Uman Jha	35 M	76	57	56	113	75	10½	16½	53	54	107	100	22	27
15	Shri Balmukand Jha	30 M	82	59	58	117	79	16	20	55	54	109	164	21	41
16	Shri Gangadhar Jha	30 M	84	57	56	113	71	16½	20	55	52	107	95	22	26

S.No.]	Name of spinner	Class of spinner	No. of days of trg.	From 10th March 56 to 27 March 56.			From 28th March 56 to 13th April 56.			Duration of work (Hours).			Duration of work (Hours).		
				Card- ing	Spg.	Total	Prodn. hanks	Count	Loss tolas	Carding	Spg.	Total	Prodn. hanks	Count.	Loss tolas
I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Age Sex															
1	Vrajendra Chaudhary.	.	.	83	65	32	97	76	16	8	45	105	122	20	16
2	Bhogendra Jha .	.	.	83	68	32	100	82	16	6	45	105	117	20	18
3	Ukkan Chaudhary.	.	.	82	65	32	97	71	16	6	41	97	99	20	17
4	Vaidyanath Jha .	.	.	82	65	32	97	76	16	5	41	97	115	20	15
5	Ramakhi Chaudhary .	.	.	83	65	32	97	76	16	6	45	105	122	20	22
6	Lakhanlal Jha. .	.	.	81	65	32	97	65	16	8	37	89	108	20	14
7	Devikant Jha .	.	.	80	67	32	99	75	16	4	33	81	106	20	15
8	Vishikant Chaudhary	.	.	83	65	32	97	72	16	6	45	105	126	20	14
9	Parmanand Chaudhary.	.	.	82	65	32	97	65	16	4	41	97	108	20	13
10	Mahendra Chaudhary.	.	.	80	65	32	97	76	16	5	48	33	81	97	20
11	Ramnarayan Chaudhary	.	.	83	68	32	100	90	16	8	45	105	116	20	14
12	Mahendra Jha .	.	.	83	65	32	97	86	16	7	45	105	119	20	16
13	Chaitanya Jha .	.	.	83	67	32	97	69	16	4	45	105	119	20	18
14	Jivad Jha .	.	.	83	65	32	97	78	16	8	48	108	140	20	12
15	Suryakant Thakar	.	.	82	48	32	100	61	16	6	41	97	109	20	11
16	Kulapal.	.	.	83	65	32	97	63	16	10	45	105	96	20	13

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
17	Kaptokhar Mandal	.	.	.	25	M	83	65	32	97	57	16	6	60	45	105	92	20	13
18	Tejnarayan Datt	.	.	.	40	M	83	65	32	97	66	16	8	60	45	105	84	20	12
19	Vidyapati Das	.	.	.	20	M	83	66	32	98	76	16	5	60	45	105	110	20	13
20	Ganga Thakur	.	.	.	25	F	78	68	32	100	47	16	6	40	23	63	64	20	12
21	Ranikabal Sai	.	.	.	20	M	83	67	32	99	87	16	9	60	45	105	82	20	14
22	Malikh	.	.	.	20	M	82	65	32	97	60	16	6	56	41	97	99	20	10
23	Babuji Pandhas.	.	.	.	30	M	82	65	32	97	69	16	5	56	41	97	103	20	11
24	Mohan Payav	.	.	.	20	M	81	68	35	103	98	16	9	52	37	89	133	20	12
25	Mrugeshwarprasad	.	.	.	25	M	71	65	32	97	78	16	8	60	45	105	109	20	13
26	Dattmukhi Pavi	.	.	.	30	F	83	65	32	97	87	16	7	60	45	105	112	20	12
27	Indra Kalabhai	.	.	.	30	M	83	65	32	97	76	16	16	60	45	105	110	20	10
28	Gangapai	.	.	.	35	M	83	65	32	97	86	16	8	60	45	105	109	20	12
29	Kanoppai	.	.	.	40	M	83	65	34	99	93	16	9	60	45	105	108	20	15
30	Nirya Pai	.	.	.	30	M	83	65	23	97	61	16	8	60	45	105	118	20	20
31	Tukmai Devi	.	.	.	25	F	83	65	32	97	87	16	11	60	45	105	85	20	14
32	Vilap Devi	.	.	.	20	F	83	65	32	97	76	16	6	60	45	105	108	20	12
33	Suraya Kalappa.	.	.	.	30	M	79	65	32	97	64	16	5	44	29	73	83	20	11
34	Mahalaxmi Devi	.	.	.	20	F	61	65	35	100	59	16	6	36	21	57	45	20	13
35	Amisa Devi	.	.	.	25	F	62	65	32	97	55	16	6	40	25	65	39	20	14
36	Unkalappai.	.	.	.	40	M	80	65	32	97	62	16	4	48	33	81	49	20	19
37	Chandrakalappai	.	.	.	40	M	80	65	32	97	56	16	4	48	33	81	68	20	10
38	Jaipalli Devi	.	.	.	20	F	80	68	32	100	91	16	10	48	33	81	71	20	10
39	Udhat Chaudhary	.	.	.	18	M	83	65	32	97	69	16	6	60	45	105	109	20	9
40	Kashappai.	.	.	.	30	M	83	65	32	97	85	16	10	60	45	105	96	20	11
41	Kunhappai.	.	.	.	40	M	78	65	32	97	43	16	5	40	41	81	35	20	10
TOTAL															3,922	4,030			

Name of the Parishramalaya: Madhepur, Tamoria, Distt. Darbhanga (Bihar)

Date of starting 5-1-56
No. of Charkha sets: 20

S. No.	Name of spinner	Class of spinner	No. of days of Trg.	From 10th Mar. 56 to 27th Mar. 56.				From 28th Mar. to 13th Apl. 56.				Duration of work (hours)				Count Loss Tolas
				Card- ing	Spg.	Total Prodr. hanks	Count Loss Tolas	Card- ing	Spg.	Total Prodr. hanks	Count Loss Tolas					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Age Sex																
1	Jayakant Jha	. . . . .	45 M	32											
2	Bhagirath Mishra	. . . . .	35 M	44	12	9	21	18	18	6½					
3	Parmanand Das	. . . . .	30 M	52											
4	Bal Dev Das	. . . . .	28 M	78	24½	23	47½	57½	18	25	51½	36½	88	58½	14
5	Ramash Lal Mandal.	. . . . .	30 M	70	43½	37½	101	83½	16	30	60	46	106	88	16
6	Jiyalal Mandal.	. . . . .	24 M	73	53	44	97	84½	16	30	60	48	108	98½	18
7	Badri Mistra	. . . . .	19 M	81	55½	38	98½	86½	18	30	55	41½	96½	83½	16
8	Shukhia Devi	. . . . .	25 F	81	55	29	84	68½	16	25	53	23	76	48½	14
9	Lal Pari Devi	. . . . .	22 F	81	20½	18½	39½	42½	16	15	18½	18½	37	41½	16
10	Rattan Vati Devi	. . . . .	30 F	78	24½	21½	46	56	16	20	34½	22½	57½	54½	18
11	Lal Das Devi	. . . . .	27 F	76	22½	27	49½	51½	15	20	20	19½	39½	38½	16
12	Chandarkal Devi.	. . . . .	35 F	20	35										
13	Pan Das Devi	. . . . .	18 F	74	43	38	81	65½	18	25	55	34½	89½	51½	16
14	Gauri Devi	. . . . .	35 F	81	52	34	86	65½	16	30	55½	36½	92	51½	16
15	Janki Devi	. . . . .	36 F	82	52	36	88	66½	16	30	52½	44½	97	60½	14
16	Fulvanti Devi	. . . . .	22 F	82	53	37½	90½	76½	18	25	54½	40	94½	57½	14
17	Laxmikant	. . . . .	40 M	79	25½	20	45½	44½	18	15	30	21½	51½	41	14

Age Sex

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
18	Rama Vallabshinh	.	.	.	19	M	78	48½	32	80½	72	18	27½	57	36½	93½	55½	16	15
19	Markande Jha	.	.	.	22	M	82	49½	42	91½	74½	20	32½	61	47½	108½	93½	16	30
20	Nunich Devi	.	.	.	45	F	70	22½	24	46½	50	16	20	28	23	51	44	16	16½
21	Sita Devi.	.	.	.	30	F	72	21½	27	48½	51	16	17½	23½	22½	46	39	16	12½
22	Vasudev Prasad	.	.	.	23	M	78	54	38	92	73½	14	35	60	44	104	94	20	25
23	Radhesham Rao	.	.	.	16	M	76	43½	38	81½	60½	16	27½	45	36½	81½	72½	18	20
24	Jibadhrui.	.	.	.	18	M	78	50	42	92	79½	16	35	58½	45½	104	83	18	25
25	Tiro Devi	.	.	.	12	F	79	45	46½	91½	76½	16	30	46½	35½	82	81	16	25
26	Prema Kumari	.	.	.	11	F	83	50	32	82	56½	14	25	57½	29	86½	48	14	15
27	Trivani Kumari	.	.	.	12	F	73	21½	16½	37½	45½	14	20	19½	15	34	28	16	10
28	Nirshi Devi	.	.	.	45	F	79	23½	25	48½	55	14	22½	33	26½	59½	46½	18	10½
29	Mahadev Misra	.	.	.	30	M	78	46½	45	91½	90½	16	33½	55½	44	99½	83	20	20
30	Triveni Devi	.	.	.	28	F	73	23½	17	40½	46½	16	15	17½	17½	35	29½	14	12½
31	Vepani Devi	.	.	.	40	F	67	24	22	46	43½	14	72½	27½	11½	30	23	14	7½
32	Gandhadhar Jha	.	.	.	25	M	76	49	40½	89½	72½	16	22½	62	44½	106½	96	16	32½
33	Gayatri Devi	.	.	.	15	F	77	53	45	98	84½	16	30	57	41½	98½	94½	16	35
34	Ranchandra Jha	.	.	.	27	M	55	15½	21½	37	46½	12	33	16	11½	27½	33	14	15
35	Ganzar Hassan	.	.	.	18	M	79	55½	36	91½	72½	14	32½	51	40½	91½	61	14	25
36	Shivnarayan Jha.	.	.	.	35	M	8												
37	Ram Lakhon Singh I.	.	.	.	22	M	71	46½	39½	86	68½	14	28½	54½	37½	83	68½	16	20
38	Ramlakhan Singh II	.	.	.	21	M	71	53½	39½	93½	70½	16	25	47½	38	85½	68½	16	20
39	Gaurishankar Jha.	.	.	.	20	M	45	43	26	69	40½	16	15						
40	Janardhan Chaudhary	.	.	.	23	M	65	45	39	84½	52½	14	21½	51½	37	88½	59½	14	20

TOTAL

2,657 1,998

Name of Parishramalya : Mazolia
Bihar Mahila Vidyapeeth
Distt. Darbhanga

Date of starting : 9-1-56
Ambar charkha Sets : 20

S. No.	Name of operative	Class of spinner	No. of days of Trg.	From 10th March to 27th March, 56 Duration of work (Hours)				From 28th March to 13th April, 1956 Duration of work (Hours)							
				Card- ing	Spg.	Total hanks	Count	Loss tolas	Card- ing	Spg.	Total hanks	Count	Loss tolas		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Age Sex													
1	Kameshwar Lal .	22 M	56	30	32	62	70	20	15	38	40	78	72	20	5
2	Chandrabali Ch.	23 M	54	25	34	59	75	20	13	41	42	83	74	20	5
3	Babu Sahib .	35 M	50	27	32	59	62	16	14	38	39	77	65	12	7
4	Urmiladevi .	28 F	35	—	Sick—					30	28	58	48	16	4
5	Balbhadra Jha .	18 M	52	27	34	61	70	18	14	37	40	77	17	16	5
6	Vachacha Dai .	24 F	48	35	33	68	52	14	13	33	34	67	56	14	6
7	Umadevi .	40 F	55	44	42	86	64	14	32	36	35	71	58	14	9
8	Kusum Padi .	35 F	56	32	36	68	59	16	20	31	30	61	52	14	6
9	Chandra Prabha Devi .	23 F	56	30	45	75	69	18	22	28	29	57	42	14	5
10	Sarupa Devi .	55 F	56	30	32	62	61	16	19	34	40	74	135	12	9
11	Chandraman Devi .	23 F	56	35	36	71	69	18	18	30	32	62	66	16	7
12	Vida Davi .	18 F	56	25	25	50	51	18	15	32	31	63	59	16	5
13	Yognmaya Devi .	55 F	42	30	35	65	63	16	20	27	28	55	52	12	6
14	Subhakalakumari .	15 F	56	40	36	76	70	16	21	30	30	60	45	16	5
15	Savitrikumari .	14 F	56	42	37	79	17	16	22	33	32	65	59	16	5
16	Saraswati Devi .	40 F	55	35	38	73	72	16	20	33	35	68	78	14	6
17	Chitraroka Devi .	22 F	56	25	30	55	70	20	17	37	37	74	70	14	7
18	Mahalaxmi Devi .	15 F	56	30	29	59	70	20	17	31	40	71	93	16	9

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
19	Mantodevi	.	.	.	56	40	42	82	80	20	36	38	74	98	8
20	Vijayakrishna Chodery	.	19 F	.	40	35	36	71	86	16	22	27	52	43	5
21	Truptinarayana	.	24 F	.	42	38	39	77	70	16	23	30	63	62	6
22	Gudeshwar Chaudhery	.	23 F	.	52	35	30	65	73	16	25	39	77	61	5
23	Shashibhushan	.	24 M	.	54	35	35	70	60	14	19	39	74	49	5
24	M. Kashim	.	17 M	.	50	34	32	66	74	12	30	36	72	56	6
25	M. Indrish	.	20 M	.	52	36	50	53	45	12	17	21	43	13	2
26	Pan Dai	.	21 M	.	50	36	35	71	71	12	28	34	70	69	5
27	Rajkant Jha	.	14 F	.	56	25	30	55	57	14	18	38	73	44	5
28	Rajkumari Devi	.	23 M	.	49	30	25	55	42	14	15	31	65	60	6
29	Vaava Dai	.	22 F	.	56	65	40	105	60	16	18	39	64	67	6
30	Savitri Devi	.	45 F	.	56	60	45	105	70	16	19	33	72	32	9
31	Vina Devi	.	43 F	.	48	70	35	105	50	16	14	27	55	53	5
32	Mahalaxmi Divi	.	60 F	.	52	74	37	111	57	14	15	39	80	92	6
33	Shyamakant Chaudhery	.	27 F	.	50	66	41	107	60	14	19	40	82	88	7
34	Dineswar	.	23 M	.	49	79	50	129	81	16	20	35	71	70	6
35	Nitya Dai	.	20 M	.	64	66	47	113	66	18	15	34	72	65	5
36	Buchchi Kr.	.	37 F	.	55	67	45	112	68	20	17	33	69	69	6
37	Laxmikant Jha	.	14 F	.	52	60	46	106	70	16	22	34	84	110	11
38	Sitakumari	.	39 M	.	50	62	32	94	62	16	19	32	71	83	10
39	Sobhakant Jha	.	14 F	.	12	..	..	..	..	..	..	..	..	..	..
40	Jagdamba Devi	.	19 M	.	15	..	..	..	..	..	..	..	..	..	..
		.	49 F	.	..	..	..	..	..	..	..	..	..	..	..

TOTAL

2,614 2,485

Name of Parishramalaya :

Dholi (N.E. Rly.) (80)

Muzafarpur (Bihar)

Date of starting: 6-1-50

No. of Charkha sets : 10

S. No.	Name of operative	Class of Spinner	No. of Days of Trg.	From 10th March 56 to 27th March 56 Duration of work (Hours)				From 28th March to 13th April 1956 Duration of work (Hours)							
				Card- ing	Spg. 2	Total Pro- duction hanks	Count	Loss Tolas	Card- ing.	Spg.	Total Pro- duction hanks	Count	Loss Tolas		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Manoramakumari	.	.	83	22	47½	69½	35	16	24	46	70	42	14	15
2	Rampatidevi	.	.	85	24	63	87	77	26	29	57½	86½	87	14	27
3	Murardevi	.	.	85	18½	48½	67	31	12	23	45	68	38½	14	15
4	Lilavatidevi	.	.	85	18½	50	68½	31	12	22½	45	57½	38½	14	15
5	Dayavatidevi	.	.	82	25½	45½	71	18	12	18½	36½	55	25	12	12
6	Gulavpari Kumari	.	.	83	25½	47½	73	21½	12	18	45	63	30	12	13
7	Kuntidevi	.	.	85	18½	48	66½	35½	12	21½	46½	68	37½	14	14
8	Jaylaskumari	.	.	85	18½	45	63½	35½	12	21½	46½	68	37½	14	14
9	Savitrikumari	.	.	84	21½	47½	69	27½	12	22½	40½	63	28	14	10½
10	Sijankumari	.	.	84	21½	47½	69	27½	12	22½	40½	63	28	14	10½
11	Mahandra Mishra	.	.	85	20½	66	86½	71½	18	15½	65	60½	83	20	22
12	Ramudev Mahto	.	.	85	20½	66	86½	71½	18	15½	65	60½	83	20	22
13	Gurcharan Mahto	.	.	85	16½	54	70½	43½	20	21½	55½	77	58	16	18½
14	Kapurchand Shah	.	.	85	16½	54	70½	43½	20	20½	55½	77	58	16	18½
15	Devram Mishra	.	.	82	20½	63½	84	74	16	18	62½	80½	68½	18	10

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
16	Prajav Lalsa	. . .	86	20½	63½	84	74	16	23	18	62½	80½	68½	18	10
17	Palsan Ram	. . .	83	20½	58	78½	51	18	14	18	51	69	48	16	15
18	Nandan Ram	. . .	76	20½	58	78½	51	18	14	18	51	69	48	16	16
19	Praknileshwarainh	. . .	82	15½	68½	84	81	20	23	14	57	71	78	10	22
20	Tilleshwarisinh	. . .	85	15½	68½	84	81	20	23	17	64	78	83	20	22
21	Devendra Thakur	. . .	82	26½	47½	74	30	14	11	18½	51	6½	31	12	11
22	Chandreshwar Thakur	. . .	51	4½	15	19½	8	14	3						
23	Umesh	. . .	81	38	53½	91½	53	14	18½	18	66	84	81	16	28½
24	Jugalkishor Mishra	. . .	83	18½	73	91½	82	20	18	16	74	90	87	16	22½
25	Surendra Mishra	. . .	68	23	51½	74½	43	16	14	18½	60	68½	48	14	15
26	Ramsha Mitram	. . .	63	23	51½	74½	43	16	14	18½	50	68½	49	14	15
27	Nageshwar Shah	. . .	82	22½	57½	80	56	14	18	15½	56½	72	57½	18	15
28	Sadanand Jha	. . .	73	22½	57½	80	56	14	18	16½	47½	64	64½	20	15
29	Chandreshwarrai	. . .	72	18	63½	81½	64½	16	22	20	65	85	14	16	28
30	Harishchandra Mishra	. . .	84	18	63½	81½	64½	16	20	12	65	77	85	16	28
31	Jagdishnarayan Thakur	. . .	81	20	57	77	66½	14	22½	18	65	84	83½	12	30
32	Chandreshwar Thakur	. . .	78	20	57	77	66½	14	22½	18	66	84	83½	18	30
33	Jaymangal Jha	. . .	80	22	55	77	44½	14	16	22	53	76	60½	12	25
34	Vitarappudevainh	. . .	81	21½	55	76½	44½	14	16	20	47	67	53½	12	15
35	Nantun Thakur	. . .	81	26½	57½	83½	71	17	21	24½	63	87½	84½	16	31
36	Ranchandra Shah	. . .	82	26½	57½	83½	71	17	21	24½	63	87½	84½	16	31
37	Laharayan Thakur	. . .	77	18	55½	73½	43½	16	13	18½	52	70½	45	16	15
38	Hiralal Mahto	. . .	84	18	55½	73½	43½	16	13	18½	52	70½	45	16	15
39	Shashishakhar Thakur	. . .	32												
40	Ramvrucksha Mahto	. . .	48												
TOTAL													2738	2153	

Proforma.
 Date of starting : 5-1-56
 Number of Charkha sets : 20

Name of Parishramalaya : Bajpatti (SITAMADHI) (Bihar)

From 16th March 56 to 27th March 56 From 28th March 56 to 13th April 56
 Duration of work (Hours) Duration of work (Hours)

S. No.	Name of operative	Class of Spinner	No. of days of Trg.	Card- ing	Spg.	Total pro- duc- tion hanks	Count	Loss Tolas	Card- ing	Spg.	Total Pro- duc- tion hanks	Count	Loss Tolas		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Age & Sex													
1	Brahmchari Shivpunjan	19 M	83	60	60	120	57	16	19	60	60	120	160	16	53
2	Brahmchari Kedarji	14 M	83	"	"	"	57	"	"	"	"	"	"	"	54
3	Brahmchari Brahmdevram	26 M	"	"	"	"	"	"	"	"	"	"	"	"	39
4	Dipiya Devi	25 F	"	"	14	41	"	13	"	"	"	"	44	"	15
5	Hanumanprasadsinh	25 M	"	"	"	43	"	14	14	"	"	"	137	"	45
6	Ramashwarprasad	35 M	"	"	"	"	"	"	"	"	"	"	137	"	46
7	Gumashish	23 M	"	"	"	"	82	"	27	"	"	"	110	"	36
8	Harshnarayan Singh	20 M	"	"	"	"	45	15	15	"	"	"	55	"	18
9	Ramchandra Jha	22 M	"	"	"	"	65	"	21	"	"	"	125	"	41
10	Kaladevi	22 F	"	"	"	"	55	"	18	"	"	"	81	"	27
11	Chandrakumari	13 F	"	"	"	"	55	"	19	"	"	"	81	"	27
12	Shobhakant Jha	21 M	"	"	"	"	69	"	23	"	"	"	104	"	35
13	Krishnadev Jha	23 M	"	"	"	"	77	"	25	"	"	"	133	"	44
14	Rajmangalsinh	22 M	"	"	"	"	74	"	24	"	"	"	88	"	29
15	Reshna devi	25 F	"	"	"	"	44	"	15	"	"	"	53	"	18
16	Mohmed Suleman	20 M	"	"	"	"	73	"	24	"	"	"	140	"	46
17	Arjun Jha	21 M	"	"	"	"	69	"	23	"	"	"	103	"	34
18	Ramakumari	12 F	"	"	"	"	46	"	105	"	"	"	36	"	12
19	Ramdulhari	27 F	"	"	"	"	59	"	13	"	"	"	56	"	19

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
20	Vasantdevi	.	.	.	19 F	.	45	.	15	.	.	.	41	.	14
21	Uttimadevi	.	.	.	15 F	60	24	16	18	8	6	7	24	.	13
22	Samudridevi	.	.	.	20 F	.	39	.	43	.	.	.	16	.	13
23	Harharprasad	.	.	.	16 M	.	69	.	23	.	.	.	56	.	19
24	Amudv Ansari	.	.	.	30 M	.	73	.	24	.	.	.	120	.	32
25	Amravati	.	.	.	38 F	.	53	.	18	.	.	.	71	.	23
26	Mahalaxmi Devi	.	.	.	38 F	.	36	.	42	.	.	.	89	.	30
27	Ramrakhi Devi	.	.	.	39 F	.	40	.	13	.	.	.	65	.	22
28	Ganeshdevi	.	.	.	30 F	.	53	.	18	.	.	.	79	.	23
29	Ovad Ahmed	.	.	.	15 M	60	46	160	15	60	60	120	54	.	18
30	Sipalkhidevi	.	.	.	25 F	.	.	.	.	.	.	.	.	.	.
31	Prabhavati	.	.	.	21 F	.	59	.	20	.	.	.	86	.	32
32	Rajkumar Jha	.	.	.	21 M	.	74	.	25	.	.	.	70	.	30
33	Vaidnath Mishra	.	.	.	29 M	.	77	.	26	.	.	.	138	.	42
34	Jaybhadra Pathak	.	.	.	32 M	.	82	.	27	.	.	.	21	.	40
35	Vaidnathprasad Singh	.	.	.	22 M	.	.	.	.	.	.	.	.	.	.
36	Tsjktsn Vhsufirty	.	.	.	20 M	.	64	.	21	.	.	.	119	.	39
37	Vanshapalak	.	.	.	21 M	.	64	.	22	.	.	.	119	.	39
38	Devendra Tivari	.	.	.	22 M	.	45	.	15	.	.	.	45	45	15
39	Rataneshwari Thakur	.	.	.	22 M	.	38	.	13	.	.	.	44	.	15
40	Chandreshwari Prasad	.	.	.	21 M	.	63	.	21	.	.	.	75	.	22
41	Chandirkaprasad	.	.	.	35 M	.	72	.	24	.	.	.	63	.	21
42	Mohmed Jahir Ahmed	.	.	.	26 M	.	66	.	22	.	.	.	60	.	23

TOTAL

5040 3183

Name of Parishramalaya : Tiril, Ranchi (BIHAR)

6 M. of Production.

From 10th March 56 to 27th March 56 From 28th March 56 to 13th April 56

S. No.	Name of Operative	Class of Spinner	No. of days of Trg.	Duration of work (Hours)				Duration of work (Hours)				Duration of work (Hours)				Count Tolas	Loss Tolas
				Card- ing.	Spg.	Total	Pro- duc- tion hanks	Count	Loss Tolas	Card ing.	Spg.	Total	Pro- duc- tion hanks	Count	Loss Tolas		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
Age Sex																	
1	Vindik Kachhap	.	.	41	64	64	128	22	8	7	64	64	128	33	10		
2	Jaypal Kacchap	.	.	41	64	64	128	22	8	7	64	64	128	33	10		
3	Mahesh Naik	.	.	41	64	64	128	23	10	6	64	64	128	34	10		
4	Pyara Kachhan	.	.	27	56	56	112	16	10	4	16	16	32	8	10		
5	Hindua Uranv	.	.	26	64	64	128	29	10	8	4	4	8	4	10		
6	Budhran Urnav	.	.	37	64	64	128	28	10	7	48	48	96	19	10		
7	Nathu Urnav	.	.	34	68	68	136	21	8	7	60	60	120	28	10		
8	Sarsa Kachhap	.	.	30	60	60	120	16	8	5	60	60	120	28	8		
9	Somari Devi	.	.	33	68	68	136	27	10	7	56	56	112	28	12		
10	Nagi Devi	.	.	31	64	64	128	23	10	5	52	52	104	16	8		
11	Bhadia Devi	.	.	21	64	64	128	21	8	7	12	12	24	3	8		
12	Mangri Devi	.	.	30	64	64	128	21	8	7	42	42	84	14	8		
13	Rutvari Devi	.	.	29	68	68	136	24	10	6	42	42	84	24	10		
14	Hariram	.	.	34	72	72	144	23	8	7	64	64	128	48	8		
15	Mahavir Ram	.	.	34	72	72	144	23	8	7	64	64	128	48	8		
16	Sannu Ram	.	.	34	72	72	144	23	8	7	64	64	128	39	8		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
17	Dhakkan Ram	.	.	.	12-M	34	72	72	144	23	8	7	64	64	128	39	10
18	Babul Ram	.	.	.	17-M	34	72	72	144	15	8	5	64	64	128	43	8
19	Sonra Munda	.	.	.	15-M	19	64	64	128	11	8	3½	12	12	24	6	8
20	Soma Munda	.	.	.	15-M	31	64	64	128	24	10	6	60	60	120	40	10
21	Jahruddin	.	.	.	15-M	31	64	64	128	24	10	7	60	60	120	40	8
22	Mahtri Urany	.	.	.	18-M	8	32	32	64	12	12						
23	Sukhdev Mahti	.	.	.	18-M	9	36	36	72	12	15	10					
24	Saraswati Devi	.	.	.	16-F	13½	54	54	108	15	10	5					
25	Laxmi Devi	.	.	.	15-F	12	48	48	96	11	10	3					
26	Geeta Devi	.	.	.	15-F	11	44	44	88	11	8	4					
27	Riman Devi	.	.	.	20-F	11	44	44	88	11	8	4					

Total

2072 575

Name of Parishramalaya : Varikhyatpur (83)

Date of starting : 20-1-56

Distt : Patna (Bihar)

Number of Charkha sets : 20

From 10th March 56 to 27th March 56																										From 28th March 56 to 13th April 56																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
S. No.	Name of Operative	Class of Spinner	No. of Days	Duration of work (Hours)													Duration of work (Hours)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
				Card- ing.	Spg.	Total Prodn. hanks	Count	Loss Tolas	Card- ing	Spg.	Total Prodn. Count	Loss Tolas	Card- ing	Spg.	Total Prodn. Count	Loss Tolas																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												

Name of Parishramalaya : Kanhya Chand Amber Parishramalaya Centre.
(Bihar)

Date of starting 11-1-56
No. of Charkha sets : 20

		From 10th March 56 to 27th March 56										From 28th March to 13th April, 56				
S. No.	Name of Operative	Class of spinner	No. of days of attendance	Age	Sex	Duration of work (Hours)										Count Loss Tolas
						Card- ing	Spg.	Total	Prod. Hanks	Count	Loss Tolas	Card- ing	Spg.	Total	Prod. Hanks	Count Loss Tolas
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1	Smt. Parna Devi	30 F	80	41	59	100	61	61	29	68	46	114	68	16	31	
2	Smt. Kamoda Devi	25 F	80	56	51	107	61	16	29	52	41	93	54	16	26	
3	Smt. Shiromani Devi	29 F	70	63	41	104	66	16	30	59	45	104	52	16	21	
4	Smt. Umeda Devi	36 F	70	57	50	106	66	16	30	61	50	111	53	16	21	
5	Smt. Shiv Kumar Devi	27 F	80	61	51	112	61	16	28	68	40	108	60	76	31	
6	Smt. Japami Devi	16 F	80	61	51	112	61	16	29	67	40	107	60	16	31	
7	Smt. Tara Devi	30 F	61	55	41	96	56	16	26	41	81	39	39	16	18	
8	Smt. Ram Laddu Devi	28 F	67	66	46	110	52	16	22	52	45	97	44	16	18	
9	Smt. Radha Devi	20 F	80	46	35	81	62	16	26	41	30	71	46	16	22	
10	Smt. Dropadi Devi	19 F	80	44	35	79	58	16	21	46	40	40	81	16	15	
11	Smt. Mantri Devi	30 F	80	52	40	92	62	16	25	13	8	21	15	16	11	
12	Smt. Neva Devi	31 F	80	54	50	104	62	16	25	121	45	106	60	16	31	
13	Smt. Chandra Devi	18 F	80	52	50	102	58	16	20	65	50	115	63	16	26	
14	Smt. Sharda Devi	18 F	80	59	45	103	61	16	20	65	50	115	63	16	26	

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
15	Smt. Rupal Devi	.	.	20 F	80	46	40	86	46	16	15	71	45	116	71	16	31
16	Smt. Mushani Devi	.	.	21 F	80	46	40	86	46	16	15	44	45	79	44	16	20
17	Smt. Nunu Devi	.	.	35 F	80	56	45	101	50	16	15	71	45	116	53	16	18
18	Smt Satya Devi	.	.	22 F	80	57	45	102	50	16	15	70	45	115	53	16	18
19	Smt. Koshalaya Devi	.	.	24 F	80	56	45	101	44	16	15	72	40	112	44	16	15
20	Smt. Sita Devi	.	.	32 F	80	56	45	101	44	16	15	73	40	113	40	16	15
21	Smt. Savitri Devi	.	.	18 F	50	56	45	101	53	16	15	40	29	69	34	16	16
22	Smt. Sunila Devi	.	.	16 F	70	50	45	95	62	16	20	48	45	93	55	16	21
23	Smt. Shiverani Devi	.	.	22 F	75	41	45	86	62	16	20	53	40	93	51	18	22
24	Smt. Savitri Devi	.	.	21 F	77	45	20	65	43	16	15	62	40	102	51	16	23
25	Smt. Rajmani Devi	.	.	34 F	77	51	45	96	58	16	22	60	40	100	58	16	23
26	Smt. Uma Devi	.	.	36 F	80	40	45	85	59	16	25	64	40	104	58	16	23
27	Smt. Sunila Devi	.	.	16 F	70	60	40	100	55	16	20	66	40	106	47	19	26
28	Smt. Vidorama Devi	.	.	16 F	76	51	45	96	50	16	20	64	40	104	45	16	18
29	Smt. Deresh Devi	.	.	45 F	77	54	45	99	49	16	16	62	45	107	45	16	15
30	Smt. Nayana Devi	.	.	36 F	70	54	45	99	49	16	21	53	40	93	41	16	20
31	Smt. Premveda Devi	.	.	14 F	80	54	45	99	48	16	17	59	40	99	44	16	20
32	Smt. Primila Devi	.	.	14 F	77	53	45	98	49	16	17	58	40	98	44	16	20
33	Smt. Subhedra Devi	.	.	16 F	80	57	45	102	75	16	30	40	25	65	38	16	15
34	Smt. Vimla Devi	.	.	14 F	80	49	45	93	75	16	30	50	44	94	45	16	22
35	Smt. Tara Devi	.	.	14 F	54	57	42	99	45	16	15	67	40	107	56	16	22
36	Smt. Parvati Devi	.	.	16 F	52	58	40	98	44	16	15	44	25	69	44	16	20
37	Smt. Naionadevi	.	.	16 F	76	59	40	99	64	16	25	59	40	52	92	16	20
38	Shri Vipinbhari Pershad	.	.	18 M	74	54	45	99	63	16	25	62	40	102	54	16	20
39	Shri Ravinder Pd. Chaudhery	.	.	22 M	75	61	40	101	76	16	30	51	35	86	47	16	20
40	Shri Muralidhar Pd.	.	.	22 M	75	61	40	101	76	16	30	66	40	106	67	16	21
TOTAL															3783	2061	

Name of Parishramalaya BIHAR KHADI GRAMODYOG SANGH

Number of Charikha sets: 25

S. No.	Name of Operative	Class of spinner	No. of days of Trg.	From 10th March 56 to 27th March 56				From 28th March 56 to 13th April 1956							
				Duration of work (Hours)				Duration of work (hours)							
				Card- ing	Spin- ning	Total Prodn. hanks	Count	Loss Tolas	Card- ing	Spg. hanks	Total Prodn. Count	Loss Tolas			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Tipadevi	20	33	..	..	88	9	10	4½	..	..	104	36	10	18
2	Kirandevis	20	35	..	..	104	24	10	12	..	..	104	68	10	19
3	Shantidevi	30	38	..	..	112	28	10	14	..	..	120	65	10	32½
4	Taradevi	20	38	..	..	112	38	10	19	..	..	120	60	10	30
5	Devki	30	38	..	..	120	50½	14	20	..	..	120	72	14	25
6	Narayani	25	35	..	..	112	51	14	20	..	..	120	86	14	32
7	Prodadevi	20	30½	..	..	88	29	12	12	..	..	102	63½	12	27
8	Suwala	22	30	..	..	120	38½	12	16	..	..	102	59	12	25½
9	Pinna	30	30	..	..	120	31	10	15½	..	..	120	49	10	24
10	Fulmani	30	30½	..	..	120	26	10	13	..	..	120	48	10	246
11	Manorama	22	35½	..	..	112	23	12	10	..	..	120	52½	10	21
12	Rambalidevi	25	35½	..	..	112	24½	12	11	..	..	120	42	12	18
13	Malti	21	35½	..	..	112	23½	10	11½	..	..	102	52½	10	26
14	Amola	24	35½	..	..	112	27½	8	14	..	..	120	48	8	24
15	Sama	20	39	..	..	120	28	10	14	..	..	120	60	10	30
16	Pana	25	39	..	..	120	20½	10	11	..	..	120	45	10	23
17	Sassidevi	23	32½	..	..	120	67½	12	28	..	..	102	84	12	35
18	Manorma	23	31½	..	..	120	32½	12	13	..	..	120	65	12	28

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
19	Kapildev Thakur	28M	39	..	..	120	10	10	19	..	..	120	63	10	38
20	Shyamunder	18M	39	..	..	112	25½	8	13	..	..	120	55	8	27½
21	Umakant Mishra	20M	39	..	..	120	26	8	13	..	..	120	62	8	31
22	Sitaram Yadav	18M	38	..	..	120	32	8	16	..	..	120	59	8	30
23	Sitaram Pashwal	18M	32½	..	..	120	20	8	10	..	..	102	39½	8	19
24	Upendra Jha	20M	37	..	..	112	13	10	12	..	..	120	35½	10	17
25	Varjandansingh	25M	35	..	..	104	60½	12	25	..	..	196	57	12	28½
26	Devki Sharma	22M	39	..	..	120	32	12	13	..	..	120	56	12	28
27	Mangeshwarsingh	30M	32½	..	..	120	27	10	13½	..	..	102	45	10	22½
28	Budhadev Mishra	20M	39	..	..	112	41	10	20½	..	..	120	80	10	40
29	Bharatprasadsingh	18M	36	..	..	120	22	10	11	..	..	120	48½	10	24½
30	Maheshanandsingh	18M	39	..	..	96	26½	8	10	..	..	120	49½	8	24½
31	Sharma	22M	36	..	..	96	20½	12	11	..	..	120	84	12	35
32	Chandar Sharma	30M	38	..	..	112	33	12	15	..	..	120	83	12	35
33	M. Singh	20M	38	..	..	112	34	10	17	..	..	120	45	10	22½
34	Radharamansingh	18M	39	..	..	120	35	10	17	..	..	120	42½	10	21½
35	Sirehsingh	18M	35	..	..	88	18	14	3½	..	..	120	45	14	15
36	Ramkumar Sharma	20M	37	..	..	104	22½	20	10	..	..	120	72	20	17
37	Bhramdev Thakur	18M	35	..	..	112	28	10	14	..	..	120	60	10	30
38	Ramavtar Chudhari	18M	34	..	..	104	12	8	66	..	..	120	38	8	49
39	Vibhutsingh	25M	22	..	..	56	5	8	21½	..	..	120	39	8	20
40	Nepalsingh	20M	22	..	..	56	11	8	5½	..	..	120	51	8	26

TOTAL . .

4736 2236

S. No.	Name of operative	Class of Spinner	No. of days Ttg.	From 10th March 56 to 27th March 56										From 28th March 56 to 13th April 56									
				Duration of work (Hours)					Duration of work (Hours)					Duration of work (Hours)					Duration of work (Hours)				
				Card- ing	Spg. hanks	Total Prodn. hanks	Count	Loss Tolas	Card- ing	Spg. hanks	Total Prodn. hanks	Count	Loss Tolas	Card- ing	Spg. hanks	Total Prodn. hanks	Count	Loss Tolas					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16								
		Age Sex.																					
1	Shri Akhleshwar Shrusi	36 M	78	21	25	46	50	16	10	63	50	113	92	16	10								
2	Shri Ramlal Yadav	10 M	26	6	13	19	15	10	20	..	..	..	..	..	..		
3	Shri Jagatlal Sush	40 M	43	..	..	..	..	..	..	..	..	..	..	..	..
4	Shri Ganeslal	16 M	31	8	8	16	8	10	15	..	..	..	..	..	..		
5	Shri Shakhi Chandra Sush	18 M	29	5	6	11	6	10	10	..	..	..	..	..	..		
6	Shri Shalingram Thakore	22 M	59	8	12	20	12	12	20	13	15	28	28	16	10								
7	Shri Saryuprasad Razv	22 M	56	15	27	42	33	12	15	44	38	86	86	14	15								
8	Shri Balramprasadinh	23 M	60	20	38	58	72	16	25	40	25	65	62	14	20								
9	Shri Laxikant Jha	22 M	57	15	19	34	19	18	10	26	25	51	42	14	10								
10	Shri Shurajundin	22 M	41	12	18	30	18	14	10	17	11	28	22	14	5								
11	Shri Shantilal Shrusi	25 M	58	21	23	44	23	14	15	41	36	77	70	12	20								
12	Shri Valeswarprasad	22 M	77	18	24	42	21	12	10	47	40	87	78	16	25								
13	Shri Akhleshwar Yadav	21 M	70	15	36	51	22	10	25	20	15	35	28	12	10								
14	Shri Shukhdev Yadav	28 M	78	18	35	53	24	12	20	20	16	36	31	18	12								
15	Shri Deepanath Yadav	26 M	74	30	30	60	30	14	15	45	40	85	60	18	15								
16	Shri Anant Moti	25 M	79	16	24	40	20	14	20	46	40	86	60	18	10								
17	Shri Dhannu Rushi	34 M	46	5	..	5	..	10	10	..	..	..	..	..	..		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
18	Shri Dhanjay Rushi .	. . . 32 M	54	10	9	19	10	10	15	..	..	..	..	..	..
19	Shri Avadhanath Podar .	. . . 22 M	55	23	26	49	21	10	20	38	30	68	63	10	20
20	Smt. Kamaladevi .	. . . 16 F	75	55	42	97	28	12	30	30	25	55	57	12	15
21	Smt. Gegadevi .	. . . 15 F	80	39	35	74	12	20	20	35	30	65	79	14	16
22	Smt. Savitadevi .	. . . 21 F	81	29	29	58	70	42	18	60	56	116	133	22	15
23	Smt. Renubala Gope .	. . . 12 F	69	10	18	28	11	10	10	..	..	..	..	..	..
24	Smt. Surbala .	. . . 26 F	67	26	18	44	11	10	10	..	..	..	..	..	..
25	Smt. Sugadevi .	. . . 13 F	74	20	29	49	22	10	20	40	35	75	60	10	10
26	Smt. Dayavadevi .	. . . 32 F	78	20	36	56	32	10	10	43	40	83	90	12	15
27	Smt. Kokiladevi .	. . . 23 F	72	22	17	39	9	14	15	25	22	47	23	16	20
28	Smt. Manibala Gope .	. . . 22 F	76	22	17	39	9	14	15	26	29	55	23	16	10
29	Smt. Rajkumari .	. . . 10 F	79	22	20	43	30	10	10	12	6	18	12	12	5
30	Smt. Minudevi .	. . . 18 F	50	12	24	36	41	12	30	..	..	..	..	..	..
31	Smt. Jagtaradevi .	. . . 23 F	30	5	10	15	10	10	10	..	..	..	..	..	..
32	Smt. Parvati .	. . . 20 F	61	9	13	22	13	14	8	30	26	56	26	12	10
33	Smt. Radhadevi .	. . . 22 F	63	19	30	39	31	14	12	22	19	41	36	14	10
TOTAL												1456 1261			

Name of Paristramalaya VELAMPALAYAM
Tirupur-Madras.

Date of starting: 10-12-55
Number of Charkha sets : 27

				From 10th March 56 to 27th March 56										From 28th March 56 to 13th April 1956									
S. No.	Name of operative	Class of Spinner	No. of days of Trg.	Duration of work (Hours)										Duration of work (Hours)									
				Card- ing					Total Prodn. hanks					Card- ing					Total Prodn. hanks				
				Count	Loss	Tolas ing	Count	Loss	Tolas ing	Count	Loss	Tolas ing	Count	Loss	Tolas ing	Count	Loss	Tolas ing					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16								
		Age																					
1	Valliammal	35	106	60	60	120	121	20	25	60	60	120	124	420	20								
2	Ponnul	30	99	60	60	120	127	20	32	60	60	120	139	20	31								
3	Annam	21	107	60	60	120	121	18	19	60	60	120	124	18	11								
4	Chellammal	21	107	60	60	120	105	18	55	60	60	120	102	19	47								
5	Valliathal	19	107	60	60	120	109	17	12	60	60	120	101	18	60								
6	Karupsal	15	107	60	60	120	103	18	34	60	60	120	104	18	20								
7	Ponnuthal	18	106	60	60	120	109	20	59	60	60	120	115	18	55								
8	Anmani	17	106	60	60	120	97	17	44	60	60	120	61	17	33								
9	Thaivathal	10	103	60	60	120	55	19	41	60	60	120	61	17	33								
10	Karuppallal	14	86	60	60	120	81	20	57	60	60	120	85	19	36								
11	Papathal	17	107	60	60	120	114	19	52	60	60	120	115	19	57								
12	Charnathal	23	41	..	..	..	..	..	..	..	..	..	..	..	..
13	Anmani	13	107	60	60	120	100	18	11	60	60	120	114	18	37								
14	Palamuthal	13	106	60	60	120	92	19	46	56	56	112	91	17	63								
15	Charnathal	11	189	62	62	104	47	19	67	..	..	..	..	..	..		
16	Vanjiammal	50	106	60	60	120	69	19	38	56	56	112	67	19	20								
17	Anmani	11	88	60	60	120	65	18	50	60	60	120	65	17	60								

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
18	Karuppaial	.	.	.	106	60	120	94	19	31	40	60	120	102	19	31
19	Ammani	.	.	.	106	60	60	120	91	18	40	60	120	90	17	36
20	Arukathal	.	.	.	103	60	60	120	79	18	14	60	120	75	17	27
21	Valthammal	.	.	.	56	60	60	120	78	16	49	60	120	87	17	51
22	Chamathal	.	.	.	55	60	60	120	45	16	51	56	112	51	16	62
23	Lakshmi	.	.	.	56	60	60	120	83	19	42	60	120	105	18	16
24	Palamuthal	.	.	.	56	60	60	120	47	16	31	60	120	61	16	42
25	Ammani	.	.	.	53	60	60	120	44	16	25	48	96	37	15	18
26	Lakshmi	.	.	.	37	44	44	88	22	17	51	..	..	..	..	..
27	Govindamal	.	.	.	56	60	60	120	65	17	45	60	120	71	18	38
28	Chumpathal	.	.	.	56	60	60	120	45	18	78	60	120	67	18	63
29	Lakshmi	.	.	.	56	60	60	120	66	20	56	60	120	83	18	41
30	Ponnuyal	.	.	.	56	60	60	120	73	18	52	60	120	89	17	52
31	Rasathal	.	.	.	56	60	60	120	57	16	62	60	120	69	16	56
32	Machuthal	.	.	.	36	60	60	120	69	17	53	60	120	81	18	36
33	Ammani	.	.	.	55	60	60	120	63	17	52	60	120	57	17	12
34	Challammal	.	.	.	56	60	60	120	67	17	60	60	100	71	15	51
35	Lakshmi	.	.	.	54	56	56	112	81	18	17	52	104	75	17	17
36	Masathal	.	.	.	55	60	60	120	79	17	17	60	120	91	18	42
37	Palaiammal	.	.	.	14	..	..	..	..	..	..	..	..	..	..	..
38	Chamathal	.	.	.	14	..	..	..	..	..	..	..	..	..	..	..
39	Machugal	.	.	.	3	..	..	..	..	..	..	..	..	..	..	..
40	Valliammal	.	.	.	3	..	..	..	..	..	..	..	..	..	..	..
41	Pallaniammal	.	.	.	36	40	40	80	42	15	27	56	112	73	16	24
42	Chammathal	.	.	.	42	60	60	120	82	15	48	60	120	82	16	44
43	Ammani	.	.	.	42	60	60	120	79	16	5	60	120	97	16	31
44	Karuppayal	.	.	.	42	60	60	120	80	16	34	60	120	99	16	32
45	Valliammal	.	.	.	42	60	60	120	79	16	44	60	120	84	15	74

46	Chinnakrupaiyal	.	.	.	15	42	60	60	120	78	16	53	60	60	28	56	120	84	15	74
47	Kuppayam	.	.	.	20	34	60	60	120	68	16	31	28	60	28	56	120	29	21	33
48	Ponnul	.	.	.	19	42	60	60	120	76	15	46	60	60	60	120	90	16	37	37
49	Arukkaiyal	.	.	.	19	42	60	60	120	77	16	29	60	60	60	120	92	16	26	26
50	Papapayal	.	.	.	19	41	60	60	120	61	15	33	56	56	56	112	63	19	34	34
51	Ponnaiyal	.	.	.	25	35	60	60	120	51	14	30	32	32	32	64	30	15	32	32
52	Rajayal	.	.	.	19	35	60	60	120	46	15	7	32	32	32	64	26	15	17	17
53	Palaniannal	.	.	.	35	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..
54	Ponnaiyal	.	.	.	14	42	60	60	120	56	13	30	60	60	60	120	68	41	41	41
55	Chinnapakal	.	.	.	15	42	60	60	120	50	14	64	60	60	60	120	70	17	21	21
56	Pappaiyal	.	.	.	12	42	60	60	120	37	15	22	60	60	60	120	43	15	38	38
57	Kannikannal	.	.	.	15	21	36	36	72	20	14	43	..	..	..	..	..	..	..	..
58	Chanathal	.	.	.	18	13	4	4	8	2	13	9	..	..	..	..	..	..	..	..
59	Karuppaiyal	.	.	.	14	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..
60	Papathi	.	.	.	13	36	56	56	112	39	13	32	60	60	60	120	58	13	37	37

TOTAL

5624 3965

Name of Parishramalaya : NAINAGOUNDANVALASU
MADRAS

S. No.	Name of Operative	Class of spinner	No. of days of attendance	From 10th March 56 to 27th March 56				From 28th March 56 to 13th April 1956							
				Duration of work (Hours)				Duration of work (Hours)							
				Card- ing	Spinn- ing	Total Produc- tion hanks	Count Loss	Card- ing	Spinn- ing	Total Produc- tion hanks	Count Loss				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Age-Sex													
1	P. Subarayan	. . . 35 M	69	67	61	128	89	16	28	43	57	100	70	17	24
2	N. Muthuswami	. . . 14 M	68	62	66	128	84	18	15	46	44	90	71	17	42
3	M. Chellappan	. . . 22 M	69	63	65	128	50	18	12	32	48	90	32	16	12
4	K. Subarayan	. . . 24 M	69	62	66	128	104	19	37	50	50	100	77	18	40
5	K. V. Viswanathan	. . . 17 M	64	67	61	128	102	20	19	44	40	84	51	17	18
6	K. S. Palanisamy	. . . 24 M	64	50	54	104	54	19	10	43	57	100	47	20	17
7	P. Swaminathan	. . . 15 M	66	69	59	128	60	18	12	43	57	100	42	18	..
8	M. Natarajan	. . . 27 M	65	68	60	228	67	16	30	48	42	90	57	19	..
9	S. Ramaswamy	. . . 35 M	61	70	58	128	70	18	16	60	40	100	52	19	..
10	K. N. Ramaswamy	. . . 35 M	60	70	58	128	108	20	30	49	51	100	62	18	34
11	Muthumal	. . . 35 M	..	70	50	120	54	18	30	60	40	100	41	19	10
12	Palaniyathal	. . . 14 M	..	67	61	128	57	18	20	60	40	100	41	19	10
13	K. R. Palaniswamy	. . . 22 M	..	68	60	128	67	17	30	50	46	96	40	18	..
14	K. S. Rangaswami	. . . 23 M	..	69	59	128	112	18	30	38	30	68	45	18	12
15	H. Chinnaaswami	. . . 20 M	..	59	69	128	57	17	..	52	48	100	56	18	..
16	K. P. Viswanathan	. . . 14 M	..	68	60	128	42	18	18	55	45	100	46	18	10
TOTAL											1518	842			

No. 54 (B)

Name of Parishramalaya: NAINAGOUNDANVALASU
MADRAS

Date of starting: 16-1-56

No. of Charkha sets : 10

S. No.	Name of Operative	Class of spinner.	No. of days of Trg.	From 10th March 56 to 27th March 56					From 28th March 56 to 13 April 56.						
				Duration of work (Hours)					Duration of work (Hours)						
				Card- ing	Spg.	Total Prodn. hanks	Count hanks	Loss Tolas	Card- ing	Spg.	Total Prodn. hanks	Count hanks	Loss Tolas		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Age													
1	P. Subarayan .	35	68½	67	61	128	89	16	28	39	57	100	70	17	24
2	N. Muthuswamy	14	67½	62	66	128	84	18	15	46	44	90	71	17	42
3	M. Chellapem .	22	68½	63	65	128	50	18	12	42	48	90	32	16	12
4	K. Subarayan .	24	68½	62	66	128	104	19	37	50	50	100	77	18	40
5	K. V. Visvanathan .	17	63½	67	61	128	102	20	10	44	40	84	51	17	18
6	K. S. Palaniswamy	24	63½	50	54	104	54	19	10	43	57	100	47	20	7
7	R. Ganeshan .	15	32	..	..	..	..	..	..	..	..	..	..	..	..
8	R. Velusamy .	22	7	..	..	..	..	..	..	..	..	..	..	..	..
9	S. Palanisamy .	22	7	..	..	..	..	..	..	..	..	..	..	..	..
10	P. Muthusamy .	18	7	..	..	..	..	..	..	..	..	..	..	..	..
11	P. Swaminathan .	15	65½	69	59	128	60	18	12	41	57	100	42	..	..
12	K. N. Paramasamy	24	34	..	..	..	..	..	..	..	..	..	..	18	..
13	M. Natrajan .	27	64½	68	60	128	67	16	30	48	42	90	57	19	..
14	S. Ramasamy .	35	64½	70	58	128	17	18	16	60	40	100	52	19	..
15	K. N. Ramasamy	35	60½	70	58	128	108	20	30	49	51	100	62	18	34
16	Muthammal .	35	59½	70	50	120	54	18	30	60	40	100	53	18	11
17	V. P. Ramasamy	23	17	..	..	..	..	..	..	..	..	..	..	..	..

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
18	R. Nallasamy	.	.	.	27	..	..	..	..	..	..	..	..	..	..
19	Palaniyathal	.	.	.	59½	67	61	128	57	18	20	60	40	40	10
20	K. R. Palanisamy	.	.	.	55	68	60	128	67	17	30	50	46	96	..
21	K. S. Rangasamy	.	.	.	51½	69	59	128	112	18	30	38	30	68	12
22	K. Chinnusamy	.	.	.	46½	59	69	128	57	17	..	52	48	100	..
23	K. P. Vanjiyathal	.	.	.	45½	68	60	128	42	18	8	55	45	36	10
Total												1518	872		

No. 55.
Name of Parishramalaya : Veerapandy (Madras State)

Date of starting 9-2-56
Number of Charkha sets : 20

S. No.	Name of operative	Class of spinner	No. of days of Trg.	From 10th March 56 to 27th March 56					From 28th March 56 to 13th April 56								
				Duration of work (Hours)					Duration of work (Hours)								
				Card- ing	Spg.	Total	Prod'n. Total hanks	Count	Loss Total	Card- ing.	Spg.	Total	Prod'n. Total hanks	Count	Loss Total		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
1	P. Theivathal	.	.	.	91	70	50	120	108	16	6	70	50	120	139	16	4
2	K. Parvathi	.	.	.	77	25	15	40	29	20	10	30	34	64	71	20	5
3	Muthayal	.	.	.	89	64	40	104	121	18	4	68	52	120	156	18	3
4	Nachiamal	.	.	.	86	60	60	120	113	15	24	50	54	104	101	17	20
5	Valiathal	.	.	.	87	75	45	120	102	18	6	60	52	112	120	19	5
6	Samathal	.	.	.	2	..	..	..	..	..	..	..	..	..	..	..	..
7	M. Sivathal	.	.	.	34	..	..	..	..	..	..	..	..	..	..	..	..
8	A. Muthalkhasina	.	.	.	88	73	47	120	112	17	13	66	54	120	124	19	12
9	Sumbalkhami	.	.	.	86	71	49	120	112	18	25	64	56	120	124	16	34
10	N. Nithathal	.	.	.	71	20	38	48	22	18	6	40	40	80	70	16	4
11	Govindthal	.	.	.	85	65	55	120	118	20	6	62	58	120	146	17	5
12	K. Ammanimal	.	.	.	83	62	50	112	120	16	10	60	60	120	144	19	9
13	L. Thiravathal	.	.	.	55	..	..	..	..	..	..	..	..	..	..	..	..
14	Savainathal	.	.	.	83	60	78	138	78	19	10	62	50	112	96	18	10
15	P. Annamimal	.	.	.	71	57	55	112	81	20	6	58	54	112	109	17	4
16	Ponnammal	.	.	.	41	..	..	..	..	..	..	..	..	..	..	..	..
17	Ruchkmani	.	.	.	62	..	..	..	..	..	..	..	..	..	..	..	..

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
18	Sarasiammal	.	.	.	50	62	112	64	10	11	40	40	80	77	16	6	
19	Palaniathal	.	.	.	40	48	88	50	16	36	54	50	104	104	16	46	
20	Lukshmi	.	.	.	8	..	..	..	..	..	..	..	..	..	..	..
21	Machhamal	.	.	.	55	49	104	60	17	16	40	40	80	67	18	14	
22	Rajamal	.	.	.	48	40	88	31	15	33	34	30	64	61	19	37	
23	Nishamani	.	.	.	60	52	112	84	15	16	50	96	146	98	18	14	
24	Mayilathal	.	.	.	38	..	..	..	..	..	..	..	..	..	..	..
25	Actuathal	.	.	.	52	34	30	64	32	16	7	..	..	..	..	..
26	Subathal	.	.	.	57	..	..	..	..	..	..	..	..	..	..	..
27	Kaliyana	.	.	.	75	60	60	120	116	20	26	50	54	104	96	22	24
28	Sinnagovindthal	.	.	.	76	60	52	112	91	16	40	60	60	120	117	24	13
29	Shammathal	.	.	.	33	..	..	..	..	..	..	48	40	88	70	17	35
30	Muthayal	.	.	.	30	..	..	..	..	..	..	40	40	80	48	17	55
31	Unnathal	.	.	.	9	..	..	..	..	..	..	..	..	..	..	..	..
32	Saraswati	.	.	.	18	..	..	..	..	..	..	..	..	..	..	..	..
33	Palaniathal	.	.	.	36	60	60	120	70	16	10	50	54	104	94	16	10
34	Valiathal	.	.	.	44	50	54	104	61	17	21	50	..	..	..	..	..
35	Subbathal	.	.	.	18	..	..	..	..	..	..	..	..	..	..	..	..
36	Valliathal	.	.	.	18	..	..	..	..	..	..	..	..	..	..	..	..
37	Sethahukshami	.	.	.	43	45	51	96	54	16	11	30	40	70	53	16	43
38	Arputhama	.	.	.	38	42	46	88	56	16	33	50	46	96	66	15	38
TOTAL.																	
															2616	2488	

Name of Parishramalaya : Sadapalayance

Date of Starting : 23-1-56

Number of Charkha sets: 23

Keedadam Vastralayam
Kundadam (P.O.) Via.
Coimbatore Distt. (Madras)

From 28th March, 56 to 15th April 56

From 10th March 56 to 27th March, 56

S. No.	Name of operative	Class of No. of spinner days of attendance	Duration of work (hours)					Duration of work (hours)					Duration of work (hours)					
			Carding Spinning Total					Carding Spinning Total					Carding Spinning Total					
			Prodn. (Hanks)	Count (Hanks)	Loss (Tolas)	Prodn. (Hanks)	Count (Hanks)	Loss (Tolas)	Prodn. (Hanks)	Count (Hanks)	Loss (Tolas)	Prodn. (Hanks)	Count (Hanks)	Loss (Tolas)				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
Age Sex																		
1	Dhanalakshmi	.	.	.	20 F	69	44	56	100	72	18	1-11	52-30	60	112-30	83	18	0-22
2	Sulochana	.	.	.	16 F	71	45-45	63-15	109	84	18	2-2	53-34	59-30	113-15	104	18	1-28
3	Meenambal	.	.	.	18 F	71	47-15	63-45	111	114	18	1-30	51-30	62	113-10	137	18	1-15
4	Palaniyammal	.	.	.	18 F	71	45-45	63	108-45	106	18	2-5	52-45	60-30	113-15	122	18	0-20
5	Parvathammal	.	.	.	30 F	71	47	61	108	76	18	1-12	52-45	60-15	113	1	18	1-27
6	Palanasami	.	.	.	14 M	70	48	60	108	85	18	0-37	48	57-15	105-15	83	18	1-21
7	Ponnammal	.	.	.	16 F	58	30	37-30	67-30	38	18	0-31	44	49-30	93-30	54	18	0-30
8	Kamalam	.	.	.	16 F	69	48-15	59-50	108-05	71	18	0-6	48-15	57	105-15	77	18	0-13
9	Palanapathal	.	.	.	14 F	47	24-30	28	52-30	32	18	0-26	23-30	29	52-30	29	18	0-20
10	Janakiyammal	.	.	.	15 F	55	45-30	61-15	106-35	69	18	1-2	1-2	9-13	22-30	16	18	0-28
11	Subbathal	.	.	.	14 F	56	45-50	62-15	107-30	59	18	0-25	14-15	16	30-15	18	18	0-10
12	Vallaiyathank	.	.	.	15 F	67	44	63	107	78	18	1-17	51	60-45	112-45	96	18	1-6
13	Dhadapani	.	.	.	18 M	65	33-45	51-30	85-15	81	18	1-5	52-15	60-45	113	107	18	1-1
14	Laxami	.	.	.	12 F	64	46	59-45	105-45	69	18	1-16	47	58	105	64	18	0-32

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
15	Papathi	60	43-15	62-15	105-30	51	18	1-15	51	61-30	112-30	83	18	1-32	
16	Valliyethal	60	47	60-15	107-15	76	18	0-18	50-30	62	112-30	96	18	1-25	
17	Subbathal	52	59-20	57-30	116-15	98	18	0-16	55-40	60-40	116-20	132	18	1-27	
18	Pushpethal	52	57-20	59-10	116-30	95	18	0-25	59-20	57-10	116-30	122	18	1-0	
19	Mathuthal	52	57-10	58-40	115-30	88	18	0-21	59-50	51-20	117-10	119	18	0-35	
20	Laxani	48	43-50	41-50	85-40	64	18	0-27	59	58-40	117-40	126	18	0-28	
21	Divani	51	51-50	57-30	109-20	127	18	0-3	57	61	118	172	18	0-34	
22	Parvatammal	52	57-10	59-20	116-30	93	18	0-30	58-50	57-10	116	122	18	0-20	
23	Khandasani	50	57-50	58-30	116-20	92	18	0-31	56-20	61-50	117-10	154	18	0-1	
24	Muthathal	48	59	48	107	49	18	1-14	58-20	56-30	115-10	83	18	..	
25	Kittammal	49	53-50	54-10	107-40	68	18	0-26	55-10	60-30	115-40	93	18	..	
26	Narayanaswami M.	50	63-30	52-50	116-20	80	18	2-26	53-50	52-40	116-30	132	18	0-38	
27	Venkatammal	48	57	58-30	115-30	69	18	0-25	59-40	56-40	116-20	85	18	0-2	
28	Machammal	47	58-50	57-20	116-10	67	18	1-18	54-10	54-20	108-30	88	18	0-25	
29	Drwani	28	33	40	73	24	18	0-8	..	..	..	..	..	..
30	Palaniyammal	48	47-40	57-30	105-10	73	18	0-25	59	57-20	116-20	88	18	1-30	
31	Pariyasi	45	48-40	51-40	100-20	61	18	0-22	56-50	59-10	116	81	18	0-34	
32	Kumarasani	45	45-50	47-40	93-30	62	18	0-21	57-60	58-30	116-20	92	18	0-36	
33	Paperammal	38	59-30	55-50	115-20	49	18	1-5	36-10	32-20	68-30	34	18	1-6	
34	Utani	39	38-50	38-30	77-20	40	18	0-11	57	59-10	116-10	91	18	0-24	
35	Arukani	44	58-40	57-40	116-20	64	18	0-10	57-50	58-20	115-10	78	18	0-19	
36	Palamal	44	59-20	56-40	116	45	18	0-35	59	56-20	115-20	65	18	0-28	
37	Govindammal	44	59-20	57-20	116-40	69	18	0-4	57-20	59-30	116-50	108	18	0-17	
38	Arukani	44	57-30	56-50	114-20	55	18	0-37	59-30	55-30	115-20	67	18	0-28	
39	Devaki	22	38-10	37-20	75-30	29	18	0-39	..	..	..	..	..	..
40	Palaniyammal	39	40-30	43-20	91-50	35	18	1-0	59	57-30	116-30	88	18	0-29	

41	Machammal	15 F	41	58.30	56.40	115.10	46	18	..	59.10	56.30	115.40	68	18	1-0
42	Venkatammal	14 F	42	56.10	56.50	113	50	18	0-30	58.10	57.40	115.50	73	18	0-34
43	Palaniyammal	17 F	41	58.40	49.30	100.10	38	18	0.38	50.30	57.20	115.50	75	18	0-15
44	Palaniyammal	15 F	40	53	59.30	112.30	42	18	1-0	54.40	55.40	100.20	68	18	0-28

TOTAL

4485 3743

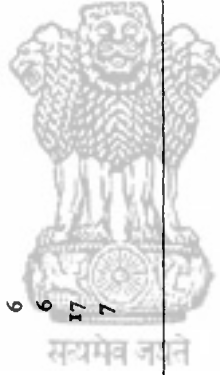
No. 57
Name of Parishramalaya : PUDUPALAYAM
Madras

S. No.	Name of operative	Class of Spinner	No. of days Trg.	From 10th March 56 to 27th March 56						From 28th March 56 to 13th April 56							
				Duration of work (Hours)						Duration of work (Hours)							
				Card- ing	Spg. Total	Prod'n hanks	Count	Loss Tolas	Total	Card- ing	Spg. Total	Prod'n hanks	Count	Loss Tolas	Total		
1		3	4	5	6	7	8	9	10	11	12	13	14	15	16		
1	Pappayee	12	60	68	47	115	31	13	1	61	50	115	52	13	1		
2	Muthiyar	20	54	63	45	108	23	13	..	61	49	110	56	13	..		
3	P. Shriavasan	45	40	46	37	83	12	13	..	61	49	110	56	13	..		
4	Muthusamy	20	50	47	41	88	23	13	..	57	55	112	44	13	..		
5	Chinnamuthu	16	54	55	54	109	23	13	1	63	50	113	40	13	1		
6	Pavalayee	15	34	51	50	101	25	13	1	48	43	91	31	13	1		
7	Perumal .	19	37	46	62	108	25	13	..	59	55	114	34	13	1		
8	V. Ramasamy	20	25	50	53	103	3	13	..	26	28	54	14	13	1		
9	C. Sengodan	19	43	51	50	101	14	13	1	62	49	111	50	13	1		
10	K. Sengodan	18	25	56	53	109	17	12	..	56	42	98	28	12	1		
11	Angoammal	12	36	77	30	107	9	12	1	58	42	100	22	12	1		
12	Meniyammal	15	36	9	19	1	7	12	1	64	41	105	16	12	2		
13	Kanthayee	12	35	65	41	106	10	12	1	56	56	112	22	12	1		
14	Chinamma	12	38	49	35	84	26	13	..	..	..	..	..	..	..

15	Payacc	.	.	.	.	.	20	60	21	81	7	13	1
16	M. Pariyasamy	.	.	.	.	.	37	52	41	93	18	13	1
17	Marayec	.	.	.	.	.	3						
18	Pappayee Vadurankuavu	.	.	.	.	.	2						
19	Thangammal	.	.	.	.	.	6						
20	Rajammal	.	.	.	.	.	6						
21	Katujamal	.	.	.	.	.	17						
22	Thayammal	.	.	.	.	.	7						

TOTAL

1345 465



No. 58.
Name of Parishramalaya : SANGARAPANIDIAPURAM
Dist. Ramnad (S.I.) (Madras).

Number of Charkha sets : 9
Date of starting 2-1-56.

S. No.	Name of operative	Class of Spinner	No. of days of	From 10th March 56 to 27th March 56								From 28th March 56 to 13th April 1956								
				Duration of work (Hours)								Duration of work (Hours)								
				Trg.	Card- ing	Spg.	Total	Prod'n. hanks	Count	Loss	Tolas	Card- ing	Spg.	Total	Prod'n. hanks	Count	Loss	Tolas		
																			Age	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16					
1	K. Krishnaswami	.	.	.	.	.	59½	13	15	28	39	17	18						
2	A. Subanaidu	.	.	.	.	.	12½	..	..	..	..	..	..	..	..	..
3	K. Perumalsami	.	.	.	.	.	89	39	51	90	149	17	40	63	55	118	84	18	43
4	N. Nallavanaidu	.	.	.	.	.	89	39	51	90	160	17	50	64	54	118	88	18	47
5	K. Shankarappan	.	.	.	.	.	82	31	54	85	115	18	24	62	49	111	126	18	26
6	S. Durairairaju	.	.	.	.	.	80	32	39	71	83	17	24	53	42	95	111	18	34
7	A. Perumalsami	28	77½	22	26	48	81	18	14	62	58	120	203	18	19
8	K. Ramsami	29	87½	34	43	77	115	18	42	62	51	113	147	18	30
9	P. Kariamalaiagar	18	35
10	K. Vengidasami	15	4½
11	S. Kaliraju	16	79	30	38	68	93	16	30	57	46	103	106	17	59
12	S. Kelsami	19	89	39	51	90	154	18	40	63	60	123	179	17	48

[illegible]

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
42	P. Rajammall .	.	.	.	.	.	57	18	34	38	53	91	89	18	37
43	Ganapparakasam	.	.	.	.	.	.	.	.	.	.	.	.	.	.
44	S. Sundaraju .	.	.	.	.	.	39	18	33	42	47	89	141	18	35
45	A. Ramlaxmi .	.	.	.	.	.	.	.	.	.	.	.	.	.	.
46	Subbah .	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Total												2515	3229		

I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
14	Vellai Ammal	.	61	70½	41½	112	65	14	14	51½	40½	92	102	15	36
15	R. Sidhai Ammal	.	62	70	46	116	78	14	35	49½	42½	92	107	13	2
16	R. Kothi Ammal	.	62	72½	46½	120	79	14	20	50½	41½	92	102	15	25
17	Selvathi	.	39	44	47	91	36	14	24	16½	11½	28	21	13	31
18	Pichammal	.	57	62½	53½	116	104	13	68	65½	50½	116	115	11	71
19	Vellaisamy	.	60	55	53	108	23	15	36	38½	45½	84	91	20	58
20	Sellaiah	.	59	55½	40½	95	70	16	48	88½	39½	68	3	16	10
21	Sundara Raj	.	57	66½	37½	104	84	16	55	52½	47½	100	104	14	42
22	Thangasamy	.	58	68½	43½	112	92	14	56	51½	48½	100	107	15	40
23	Muniandi	.	62	69	39	108	79	14	59	52	52	54	115	15	29
24	Iglusamy	.	21	59½	10½	40	19	13	27	..	..	..	..	..	..
25	Sundaram	.	17	27½	12½	40	23	16	22	..	..	..	..	..	..
26	S. Subbiah	.	26	52	44	96	70	16	40	40½	39½	80	83	16	10
27	Piramu Ammal	.	63	36	28	64	53	17	18	50	42	92	102	16	20
28	S. Konathi	.	61	81	37	118	90	14	24	62½	37½	100	90	15	20
29	V. Muthammal	.	64	75	43	118	106	20	30	58	46	105	126	17	2
30	Nainar	.	60	60	43½	81½	50	16	20	11½	12½	24	22	16	7
31	B. Parvathi	.	62	65½	44½	110	69	17	24	27½	25½	60	90	16	39
32	S. Muthammal	.	53	72	34	106	64	14	27	53½	34½	87½	80	14	39
33	R. Mari Ammal	.	59	78½	33½	112	66	16	29	60	48	108	70	16	3
34	A. Makamayi	.	59	66	40	106	64	14	22	54	42	96	86	15	18½
35	V. Vadivu	.	62	48	32	80	41	16	12	52½	27½	80	48	13	52½
36	Madathi	.	61	80½	33½	114	58	13	26	52	32	84	55	14	7
37	N. Laxmi	.	62	73	41	114	76	11	32	54½	45½	100	101	16	32
38	Raja Laxmi	.	62	67½	38½	105½	51	13	19	58	34	92	47	13	19
39	Ambujam	.	63	71	47	118	63	17	24	69	39	108	82	16	30

16	S. Sinnammal	.	.	.	.	35 F	81	103	99	202	107	23	32	52	53	105	145	22	37
17	K. Muthammal	.	.	.	.	26 F	75	101	95	196	104	22	36	30	32	62	77	21	25
18	S. Rajammal	.	.	.	.	10 F	82	87	90	177	80	25	19	45	58	103	85	22	24
19	A. Eswaravadiam	.	.	.	.	11 M	83	99	83	182	87	22	27	49	57	106	84	21	31
20	S. Karuppayee	.	.	.	.	10 M	24	.	.	.	.	.	.	.	.	.	.	.	.
21	K. Seentiarumal	.	.	.	.	13 F	88	99	93	192	103	22	29	42	44	86	88	22	30
22	M. Sangili	.	.	.	.	21 M	63	89	102	191	102	21	38	49	43	92	88	24	23
23	V. Narayanan	.	.	.	.	38 M	59	63	68	131	71	21	27	48	52	100	141	23	38
24	S. Sagararayan	.	.	.	.	23 M	57	73	67	140	85	23	21	52	49	101	100	24	32
25	N. Rangaswamy	.	.	.	.	21 M	54	102	93	195	107	22	39	31	34	65	79	24	19
26	V. Gopalaswamy	.	.	.	.	25 M	59	68	73	141	89	20	27	36	44	80	84	21	23
27	P. G. Guruswamy	.	.	.	.	27 M	59	75	69	124	89	21	32	48	54	102	100	24	27
28	P. Venkataswamy	.	.	.	.	23 M	59	49	58	107	69	20	30	44	53	97	104	23	32
29	S. V. Kannan	.	.	.	.	23 M	59	73	67	140	80	23	25	47	56	103	105	20	29
30	S. Sanjeeviraj	.	.	.	.	21 M	59	65	73	138	80	24	21	44	51	95	103	20	23
31	S. Mani	.	.	.	.	20 M	58	107	93	200	129	21	38	37	35	72	79	21	21
32	P. Kamalpatcha	.	.	.	.	24 M	56	73	68	141	80	23	27	49	46	95	75	20	19
33	R. Alwar	.	.	.	.	23 M	47	74	69	143	75	24	32	34	36	70	71	20	21
34	A. Saroja	.	.	.	.	13 F	58	20	23	43	39	24	19	48	51	99	83	21	19
35	S. Sankaramoorthy	.	.	.	.	13 M	59	73	68	141	85	25	38	39	51	90	83	20	22
36	R. Ranganayagi	.	.	.	.	22 F	59	34	22	56	57	23	37	42	48	90	87	21	20
37	E. Kowsalya	.	.	.	.	18 F	59	32	27	59	57	24	39	56	62	118	150	22	45
38	E. Mariammal	.	.	.	.	22 F	59	31	29	60	58	22	47	38	42	80	84	22	24
39	R. P. Vijalakshmi	.	.	.	.	25 F	58	28	32	60	56	23	38	34	36	70	72	20	20
40	R. Rajam	.	.	.	.	35 F	59	30	31	61	60	22	39	36	42	78	83	20	22
41	Guruviah	.	.	.	.	19 F	45	57	53	110	69	24	28	20	23	43	49	20	12
42	Anathammal	.	.	.	.	50 F	43	32	31	63	56	23	27	22	24	46	51	20	13
43	Darling Hepziah,	.	.	.	.	20 F	38	33	30	63	56	22	31	53	59	112	141	20	37

Total

Name of Parishramalaya M. Reddiayapatty
Via. Aruppukottai
Ramanand Dt. (Madras.)

				From 10th March, 56 to 27th March, 57										From 28th March, 56 to 13 April, 56									
Sl. No.	Name of Operative	Class of spinner	No. of days of attendance	Duration of work (Hours)										Duration of work (Hours)									
				Car- ding	Spg.	Total	Prodn. hanks	Co- unt	Lo- se	Car- ding	Spg.	Total	Prodn. hanks	Count	Lo- se	Tolas							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16								
			Age Sex																				
1	P. R. S. Gandhi .	.	18 M	4	..	..	..	..	..	..	..	..	..	..	..	..
2	N. S. Ramaia .	.	24 M	40	48	96	94	24	23	60	60	100	140	22	140								
3	S. S. Srinivasan .	.	40 M	44	48	96	88	23	22	58	62	120	109	18	45								
4	V. S. Dhanushkody .	.	27 M	44½	51	65	116	123	24	26	22	26	48	43	21	15							
5	V. L. Venkidasabu .	.	23 M	53½	50	68	116	103	24	26	50	104	99	20	34								
6	R. Guruswamy .	.	25 M	55	53	63	116	99	23	25	34	72	65	20	21								
7	R. Jagannathan .	.	17 M	49	51	65	116	99	23	25	34	72	65	20	21								
8	K. P. A. Subbu .	.	32 M	20½	24	28	52	36	22	12	..	..	..	..	..			
9	G. Linguswamy .	.	19 M	41½	48	52	100	86½	23	25	50	104	102	18	41								
10	S. Ramaswamy .	.	35 M	43	46	66	112	64½	20	21	30	64	45	18	18								
11	R. Bose .	.	23 M	36	45	63	108	63½	20	21	48	52	100	71	20	28							
12	G. Ramaia .	.	23 M	47½	54	58	112	93½	22	27	50	104	113	20	37								
13	P. S. Chinnathambi .	.	27½ M	49	54	58	112	93½	22	27	50	104	105	19	31								
14	A. Subbaramman .	.	24 M	47½	46	50	96	82½	22	27	50	104	105	19	31								
15	S. N. Nallagubbu .	.	18 M	49½	48	46	88	72½	20	23	50	58	108	96½	19	27							

16	P.R. Ramachand	.	.	.	.	21	M	53	50	54	104	96½	24	26	56	64	120	109	19	34
17	K. Subbai	.	.	.	.	19	M	49	44	48	92	81	21	23	50	54	104	88	19	26
18	N. Karuppa	.	.	.	.	32	M	51	51	53	104	74	23	21	45	51	96	68	21	20
19	S. Paluswamy	.	.	.	.	16	M	50½	50	54	104	69½	23	21	45	51	96	68	21	20
20	R. Subbu	.	.	.	.	29	M	53½	55	57	112	116	25	23	54	62	116	161	25	34
21	P.P. Kannan	.	.	.	.	21	M	52	42	46	88	84	23	20	56	564	120	135	20	38
22	S. Somaiba	.	.	.	.	21	M	44½	46	50	96	71	22	21	48	100	84	18	13	22
23	V. Venkataraman.	.	.	.	.	22	M	45	44	48	92	78	22	21	48	52	100	84	18	22
24	S. Srinivasan	.	.	.	.	23	M	37	46	50	96	91½	23	25	34	38	72	65	13	17
25	S. Thirumal	.	.	.	.	22	M	40	50	54	104	67	22	18	40	44	84	61	18	17
26	A. Balakrishnan	.	.	.	.	16	M	30	36	40	76	40	21	13	..	..	..	..	..	..
27	T. Naschiyal	.	.	.	.	25	M	54	58	62	120	123	19	27	58	62	120	168	21	41
28	S. Panchaliyammal	.	.	.	.	24	F	53	54	58	112	94	21	29	50	58	108	107	18	17
29	R. Nallammal	.	.	.	.	17	F	42½	50	54	104	80	21	27	52	56	108	188	20	24
30	P. Panthanam	.	.	.	.	19	M	47½	40	44	84	55	18	20	50	58	108	88	20	24
31	R. Chembakam	.	.	.	.	21	F	47	44	48	92	58	20	21	50	54	104	78	18	24
32	K.V.S. Nallammal	.	.	.	.	14	F	45½	36	40	76	53	20	17	45	51	96	81	18	26
33	A. Dhanammal	.	.	.	.	25	F	47½	50	54	104	63	20	22	40	44	85	70	19	19
34	V. Chenkamalam	.	.	.	.	27	F	44½	50	58	108	56½	18	22	36	44	80	53½	18	15
35	N. Sarada	.	.	.	.	26	F	46	48	52	100	55½	18	21	38	42	80	57	18	18
36	Miyamal.	.	.	.	.	40	F	42½	54	58	112	88	22	25	50	58	108	105	17	27
37	P. Ramaswamy	.	.	.	.	50	M	35	48	52	100	71½	20	22	50	58	108	183	16	24

Total

3373 3143

Name of Prishramalya : Kulempalayam
(Coimbatore-Madras)

Date of starting: 18-2-56
Number of Charkha sets : 8

Sl. No.	Name of operative	Class of spinner	No. of days of attendance	From 10th March, 56 to 27th March, 56										From 28th March, 56 to 13 April, 56									
				Duration of work (hours)					Duration of work (hours)					Duration of work (hours)					Duration of work (hours)				
				Car- ding	Spg.	Total	Prod.	hanks	Co- unt	Loss	Tolas	Car- ding	Spg.	Total	Prod.	hanks	Count	Loss	Tolar				
1				3	4	5	6	7	8	9	10	11	12	13	14	15	16						
1	Senniappan		Age 24	59	56	64	120	120	18	26		59	61	120	159	20	35						
2	Ponnuswamy		21	71	60	60	120	54	18	13		60	60	120	73	20	15						
3	Thirupthal		14	72	59	70	120	51	18	12		70	50	120	73	20	16						
4	Muhammal		15	65	50	70	120	50	18	11		59	61	120	66	20	13						
5	Urumathal		14	69	54	66	120	34	18	10		58	62	120	69	20	15						
6	Pappamai		16	72	50	70	120	79	18	8		51	69	120	127	18	25						
7	Veeramai		35	67	57	63	120	50	20	10		60	60	120	84	18	20						
8	Chokkappan		26	59	58	62	120	77	20	14		60	60	120	103	18	20						
9	Perujaswamy		16	64	60	60	120	47	20	10		56	64	120	70	18	1						
10	Lakshmanau		28	46	54	66	120	50	20	12		51	69	120	102	18	20						
11	Peusabiruppatha		25	46	59	61	120	57	20	12		50	70	120	106	18	5						
12	Govindathai		18	46	60	60	120	105	20	20		52	60	112	142	18	38						
13	Govindamal		20	46	60	60	120	102	24	20		52	60	112	135	20	26						
14	Thayalthal		19	46	60	60	120	98	24	18		52	60	112	136	20	21						
15	Sornathal		18	47	54	66	120	80	20	16		54	66	120	115	22	20						

S. No.	Name of Operative	Class of spinner	From 10th March, 56 to 27th March, 56										From 28th March, 56 to April 13, 56									
			No. of days of attendance		Duration of work (Hours)		Total Prod.		Count		Loss		Total Prod.		Count		Loss		Total		Count	
			4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		3																				
1	Mathathal	17 F	58	56	56	112	117	14	95	60	60	120	178	16	..							
2	Pappathi	15 F	54	56	56	112	92	14	60	60	60	120	101	17	6							
3	Kaliathal	13 F	45	56	56	112	65	14	..	40	40	80	55	14	..							
4	Subbathal	15 F	43	40	40	80	70	14	2	28	28	56	46	15	4							
5	Laxmi	15 F	52	56	56	112	60	14	62	60	60	120	61	16	..							
6	Govindathal	16 F	50	56	56	112	91	14	33	56	56	112	85	16	..							
7	Hivathal	16 F	48	56	56	112	70	14	27	40	40	80	52	16	..							
8	Nachathal	16 F	46	56	56	112	73	14	8	28	28	56	36	17	44							
9	Saraswathy	15 F	51	56	56	112	71	14	15	60	60	120	88	18	..							
10	Laxmi	13 F	48	56	56	112	57	14	48	48	48	96	59	13	..							
11	Mathathal	17 F	46	56	56	112	67	14	70	40	40	80	69	15	..							
12	Rukmani	17 F	49	56	56	112	81	14	33	52	52	104	86	17	..							
13	Ponnathal	12 F	42	40	40	80	40	14	17	48	48	96	60	16	13							
14	Nachathal	18 F	42	56	56	112	78	14	17	20	20	40	22	18	..							
15	Govindathal	15 F	63	56	56	112	94	14	41	56	56	112	116	17	..							
16	Nachathal	17 F	51	56	56	112	58	14	18	60	60	120	67	14	15							
17	Ponnathal	16 F	51	56	56	112	55	14	44	36	36	72	40	14	..							

18	Parvathi .	.	.	.	.	45	44	44	88	61	14	52	60	60	120	96	16	..
19	Manickom .	.	.	.	.	47	52	52	104	57	14	22	48	48	96	62	19	..
20	Janaki .	.	.	.	.	47	36	36	72	68	14	27	60	60	120	138	20	9
21	Rukmani .	.	.	.	.	43	48	48	96	39	14	60	40	40	80	35	16	60
22	Kaliammal .	.	.	.	.	50	56	56	112	55	14	24	56	56	112	68	18	..
23	Muthammal .	.	.	.	.	27	32	32	64	30	14	25	..	..	..	..	..	..
24	Govindathal .	.	.	.	.	53	56	56	112	87	14	2	50	50	100	147	14	..
25	Ponnammal .	.	.	.	.	41	56	56	112	71	14	..	52	52	104	83	15	19
26	Arukathal .	.	.	.	.	25	48	48	96	52	40	35	..	..	..	..	..	..
27	Tivathal .	.	.	.	.	38	52	52	104	43	14	36	60	60	120	53	16	41
28	Ammani .	.	.	.	.	38	18	48	96	44	14	40	60	60	120	75	15	..
29	Samathal .	.	.	.	.	16	12	12	24	57	14	41	1	..	..	..	..	..
30	Saraswathy .	.	.	.	.	26	48	48	96	44	14	12	..	..	..	..	..	..
31	Muthuswamy .	.	.	.	.	38	56	56	112	44	14	29	44	44	88	55	14	17
32	Muthuswamy .	.	.	.	.	36	56	56	112	43	14	..	36	36	72	41	15	26
33	Palaniswamy .	.	.	.	.	34	56	56	112	33	14	33	60	60	120	59	17	2
34	Chinnam .	.	.	.	.	33	44	44	88	33	14	17	52	52	104	93	19	21
35	Tivathal .	.	.	.	.	18	22	22	44	31	14	39	4	4	8	8	18	..

TOTAL

2948 2254

Name of Parishramalaya : Ambar Charkha Parishramalaya
Attipakkam (Madras)

Date of starting 25/1/56
No. of Charkha sets 10

S. No.	Name of operative	Class of operative	Train- ing days	10/3/56 to 27/3/56										28/2/56 to 13/4/56					
				Duration of work (Hrs)										Duration of work (Hrs)					
				Card- ing	Spin- ning	Total	Count	Pro- duc- tion	Loss	Tolas	hanks	Card- ing	Spin- ning	Total	Count	Pro- duc- tion	Loss	Tolas	hanks
1	2	3	4	5	6	7	8	9	10			11	12	13	14	15			
1	Manna Perumad	(M)	55	42	42	84	12	17	13			48	48	96	16	17	8		
2	C. Adimarain	(M)	51	56	56	112	20	52	...			47	47	94	18	67	5		
3	Panchajanyan	(M)	44	44	44	88	13	36	88			12	12	24	10	1	11		
4	M. Yelumalai	(M)	37	24	24	48	10	8	33			..	..	..	..	..	..
5	R. Muniratnam	(M)	49	40	40	80	20	50	37			36	36	72	20	34	4		
6	K. Raman	(M)	49	52	52	104	14	28	21			52	52	104	16	26	17		
7	Tirugnana Sanbandhan	(M)	36	52	52	104	13	21	16			36	36	72	20	17	12		
8	Kanyapan	(M)	27	36	36	72	13	13	13			36	36	72	20	16	..		
9	K. Balraman	(M)	34	48	48	96	20	53	20			8	8	16	13	10	10		
10	Natranjan	(M)	41	52	52	104	20	33	38			44	44	88	20	32	..		
11	Chinnraj	(M)	35	44	44	88	20	19	7			24	24	48	14	11	6		
12	N. Mani	(M)	19	28	28	56	13	14	24			24	24	46	16	16	8		
13	Arukirti	(M)	25	24	24	48	10	16	31			40	40	80	16	26	5		
14	Chandrakirti	(M)	37	44	44	88	20	41	30			48	48	96	20	33	..		
15	Ratnawel	(M)	35	48	48	96	14	45	18			36	36	72	20	36	..		
16	Neduperumal	(M)	10	44	44	88	10	9	30			28	28	56	16	18	..		
17	Chengalrain	(M)	14	36	36	72	10	11	22			..	..	..	..	..	..
Total														1,038	352	86			

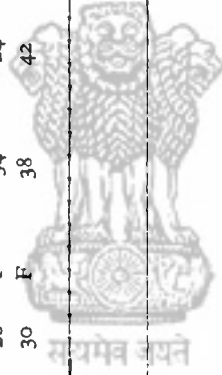
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	Krushna Jhambak	.	38	59½	55½	114½	..	..	..	..	..	..	..	..	..
18	Utam Totaram	.	30½	..	..	..	..	..	..	..	..	..	..	..	..
19	Rama Jhambak	.	35	..	..	..	..	..	..	..	..	..	..	..	..
20	Lilabai Sinda	.	41	38	18	56	56	19	13	34	47½	81½	52	25	13
21	Jagannath Gulba	.	33	65½	53	118½	118½	18	12	44½	55½	99½	60	21	17
22	Karimkhan Pathan	.	28	57	44	101	101	16	10	30½	37½	82	41	24	11½
23	Sadashiv Sinda	.	27	94½	40	134½	134½	..	11½	44½	28	..	..	..	..
24	Saryanarayan Oza	.	24	50½	42½	92½	92½	12½	12½	25½	54	33½	26	26	8
25	Hrishchandra Mane	.	29	59	49	108	108	20	11½	46½	..	100½	..	..	..
26	Yashwant Dayal	.	28	59½	50	109½	10½	..	..	..	..	..	..	..	..
TOTAL												1749	997	..	..

1	2	3	4	5	6	7	8	9	10
		Age	Sex						
18	Abdul Borotte	20	M	81	31	59	90	99	35
19	Sidramayasawmy	18	M	76	38	38	76	39	1
20	Basavva Loni	16	M	73	40	44	80	46	24
21	Bhimavva Rajput	31	M	79	30	47	77	59	13
22	Gurumothiaswamy	18	M	76	41	45	86	50	14
23	Kamalavva Rajput	14	M	79	21	54	75	89	12
24	Magdum Nathar	30	M	65	40	45	84	70	74
25	Imambi Awoor	36	M	76	36	42	78	35	13
26	Irappassery	24	M	74	27	37	64	56	15
27	Nagappassery	18	M	68	19	16	36	34	14
28	Sangavva Eli	14	M	74	27	56	86	41	13
29	Sonobhai UalbuMgi	25	F	73	32	43	75	37	15
30	Ahmad Pattan	16	M	62	21	19	40	20	7
31	Mahatab Jamadhar	17	M	60	27	29	65	27	15
32	Sathavva Dankar	36	M	52	20	36	56	37	12
33	Manyavva Dankar	31	M	69	50	35	85	40	15
34	Bhimana Nimbai	40	M	52	21	18	39	17	14
35	Tulasambi Dasavale	60	M	70	38	36	74	40	12
36	Shivasarnappa Thipargi	16	M	47	20	22	42	25	8
37	Ratnabhai Sutar	14	F	69	40	43	83	41	13
38	Gangabhai Shetwale	21	F	64	38	49	87	58	23
39	Sidrappa Topagi	26	M	64	46	38	85	51	13
40	Manjuri Lupde	16	M	42	38	41	79	52	15
41	Kasfiri Pattan	28	M	51	17	19	36	24	8
42	Jairabi Gadiwale	40	M	55	40	36	76	34	11

43	Nannibhu Sache .	.	.	.	.	50	M	48	25	31	56	37	13	13
44	Saranavva Shilapure .	.	.	.	.	26	M	37	41	46	87	46	15	15
45	Gurulingappa Gangane	.	.	.	.	28	M	36	30	31	61	42	14	11
46	Shalin Deshmukh .	.	.	.	.	20	F	34	24	29	53	39	28	11
47	Saaswathy Pandit .	.	.	.	.	30	F	38	42	44	86	27	12	11

Total

3416 1094



[illegible]

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
48	Sri Shyamji	36	76	38.00	34.40	86.40	19	16	12	36.35	40.50	77.25	35	15	
49	Sri M. Hanif	20	61	35.10	37.30	72.40	51	11	10½						
50	Sri Irappa Sarappa	24	43½	32.30	48.35	82.05	66	15	22	21.00	37.00	58.00	56	15	24
51	Sri Nagappa A. Seri	18	67½	36.00	30.60	75.50	59	14	20½	19.00	16.10	35.10	34	14	15
52	Sri Sangappa Saranappa	14	73½	30.00	34.10	64.10	28	11	12	29.15	56.15	86.30	41	13	21
53	Sri Sonubai	25	72½	38.05	40.56	79.01	85	15	16	32.15	43.40	75.55	37	15	14
54	Sri Irappa Telappa	27	41												
55	Sri Ahmad Ibrahim Pathan	16	62	33.15	38.35	71.50	38	14	13	21.00	11.45	32.45	20	15	6½
56	Sri Mahetab Mohamad	17	59½	27.15	45.15	72.30	39	15	13	27.30	4.10	31.40	27	15	10
57	Sri Sanappa Keehappa	36	52	42.35	38.50	81.25	37	12	12	26.10	36.10	62.20	37	12	15
58	Sri Maneappa Karesppa	31	68½	38.20	00.1	38.21	41	14	16	11.50	35.36	47.26	40	10	15
59	Sri Gangappa Siddhappa	50	37½	42.35	34.30	76.05	27	12	12						
60	Sri Bhimappa Issappa	40	51½	38.20	37.30	75.50	15	11	12	21.00	19.39	39.30	17	14	7½
61	Sri Kulsangi Nabiso	60	70	56.00	42.30	98.30	20	10	16	38.30	30.40	69.10	40	14	12
62	Sri Shivsaranappa G.	16	47	14.15	44.15	58.30	14	15	12½	20.10	22.00	42.10	25	15	13
63	Sri P. Shivappa	16	68	34.40	49.20	84.00	25	14	9	40.45	43.00	83.45	41	13	12
64	Sri Gangubai Bapurao	21	64	38.45	40.50	79.35	42	14	9	38.55	49.50	87.45	58	13	23
65	Sri Siddhappa Kalyanappa	26	64	30.00	29.50	59.50	30	14	14	46.30	37.40	84.10	51	17	13
66	Sri Ranabai Irappa	14	68	34.40	49.20	84.00	25	14	9	40.45	43.00	83.45	41	14	12
67	Sri Tarabai Gulab	24	10												
68	Sri Manjur Babalal	16	42	38.10	40.35	78.45	29	15	13½	39.30	41.30	81	52	15	14½
69	Sri Mohamadsha Malacksha	18	22½												
70	Sri Kasim Ibrahim	28	50½	33.05	47.54	80.50	48	15	22	17	19.30	36.30	24	14	3½
71	Sri Nasavanppa Rachappa	28	21												
72	Sri Irena Bhimsen	16	30	16.10	17	33.10	16	12	7½						

18	Bhila Patil	.	.	.	32	M	62	43½	45½	89	62	14	20	41	54½	95½	53½	14	17½
19	Manohar Gurav	.	.	.	24	M	62	31½	62½	94	97	18	40	42	56	98	92½	16	32½
20	Chithu Chaudhary	.	.	.	23	M	61	23	86	109	100	12	70	46	66	112	98	13	50
21	Mohan Masad	.	.	.	20	M	47	36½	49	85½	36	10	15	36½	49	86½	32½	12	20
22	Abdul Aziz	.	.	.	19	M	61	53½	52½	105½	77	14	40	50	50½	100½	103	15	60
23	S. Hassan.	.	.	.	18	M	60	46	41	87	55	16	30	43½	60½	104	140	14	55
24	Kanlilal	.	.	.	18	M	59	26	48½	74½	69	14	30	24	54	78	103½	16	67
25	Bhimrao Deshmukh	.	.	.	33	M	60	60	60	120	64	14	40	56	56	112	135	16	64
26	Suman Shere	.	.	.	29	M	61	41	57	98	79	14	20	42	70	112	105	14	40
27	Namdev Sathe	.	.	.	18	M	55	59	60	119	105	15	40	29	27	56	65½	14	24
28	Gunvant Patil	.	.	.	19	M	57	44	54	98	72	15	30	56	56	112	121	14	42½
29	Vishvas Patil	.	.	.	29	M	57	55½	54	109	50	13	30	64	55	119	53	12	39
30	Tukaram Deshmukh	.	.	.	18	M	56	47	68	115	65	13	40	56	56	110	66½	14	50
31	Bhalerao Patil	.	.	.	24	M	19												
32	Chagan Gadhari	.	.	.	22	M	47	40½	41	81½	91½	14	40	54½	54½	109½	107½	15	50

TOTAL

2,894 2,332

6 M. of Production.

Name of Parishramalaya : Patankar, Sarvodaya Sanchalak Rajar.

		No. of Charkha Sets : 30													
		From the 10th March 1956 to 27th March 1956					From 28th March 56 to 13th April 1956								
Serial No.	Name of operative	Class of Spinner	No. of days of Training	Duration of work (Hours)					Duration of work (Hours)						
				Card- ing	Spg.	Total Prodn. hanks	Count	Loss Tolas	Card- ing	Spg.	Total Prodn. hanks	Count	Loss Tolas		
I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Age	Sex												
1	Murlihar Tukaram Shevlo	19	M	67	40	40	80	51½	40	40	48	96	81½	18	3½
2	Anandlal Jivraj Doshi	22	M	63	56	55	111	86	16	43½	44	88	75½	16	3½
3	Basant Ramchandra Kharade	22	M	57½	44	48	92	47½	15	45	24	48	39½	15	..
4	Shanker Jagannath Dharane	22	M	58	52	48	100	47½	16	75	56	108	48	16	8½
5	Shantilal R. Dagdu	18	M	56	48	55½	103½	57½	16	36½	12	16	28	16	33½
6	Digamber T. Sinde	26	M	63	52	51	103	52	16	96½	40	84	62	17	11½
7	Kumudini G. Durve	21	F	60½	45	51	96	58½	18	76½	56	112	76½	19	10
8	Pratima Korane	28	F	63	48	59	107	57½	16	47½	48	96	81½	18	3½
9	Anand A. Kulkarni	27	M	62½	56	56	112	43½	16	12½	56	112	69½	19	2½
10	Shankar L. Shabde	20	M	48½	44	44	88	33½	15	52½	..	..	..	..	..
11	Kalavati Kakade	22	F	36	54	50	104	20½	12	95	56	112	36	16	2½
12	Puna G. Kavte	23	M	30	52	52	104	28½	14	33½	52	104	41½	16	3½
13	Kamalatai Chitrigi	45	F	36	48	40	88	27½	16	38½	36	72	28½	18	5
14	Hari D. Rokde	16	M	42½	53	57	110	30½	15	42½	33	66	28	16	37½
15	Malti T. Bhangre	17	F	47½	53	50	103	35½	14	22½	52	104	32	16	21½
16	Aba K. Pondaokar	28	F	34½	56	54	110	22	14	22½	28	56	15	15	2½
17	Laxman Nagji Bande.	27	F	36	52	52	104	35½	16	5	44	88	46	16	3½
18	Sau. Shramila Kulkarni	24	F	60½	56	54	110	34½	16	17½	48	96	38½	18	2½

19	Shravna T. Dadvade	.	19	M	56½	32	55	107	29	15	13½	44	52	96	32½	17	2½
20	Shavderam H. Rangta	.	20	M	47½	52	57	109	20½	14	23½	44	48	92	37	22	22½
21	Badu Shalka Pawar	.	20	M	46	57	52	109	39½	16	8½	40	44	84	47	19	8½
22	Soma Dagdu Bote	.	20	M	49½	52	57	109	35½	14	1½	44	56	100	40½	20	3½
23	Nivruti Tukaram Deshmukh	.	18	F	51½	56	56	112	32½	15	36½	52	56	108	40½	18	8½
24	Trambak Santha Etilkar	.	19	M	50	57	47	104	25	12	25	48	48	96	24½	16	1½
25	Hari Mahadev Bhargre	.	20	M	48	44	48	92	24	14	27½	36	44	80	23½	16	1½
26	Dula Gopal Bangre	.	18	M	48	52	49	101	24	15	2½	40	40	80	16½	15	2½
27	Soma Hari Konda	.	17	M	57	52	52	104	21½	14	6½	52	56	108	22½	18	2½
28	Nina Lika Konda	.	14	M	51½	54	49	103	17½	13	17½	48	52	100	19½	19	17½
29	Soma Maruti Jadhav	.	21	M	46	48	48	96	26½	16	17½	28	32	60	20½	16	5
30	Balu Dagdu Banle	.	24	M	49	40	44	84	22½	15	17½	44	48	92	32½	16	2½
31	Samju Nagji Kondal	.	28	M	51½	52	51	103	35	15	3½	48	52	100	42½	18	7½
32	Sau Vilochna Khadadkar	.	22	F	48	56	56	112	39½	15	13½	52	52	104	41½	18	1½
33	Sindu Savderam Nadekar	.	20	M	49½	52	52	104	30½	15	2½	48	52	100	34½	17	½
34	Laxman Uka Tapase	.	29	M	47½	48	47	95	21½	15	7½	16	20	36	7	16	..
35	Anna Gunaji Kondar.	.	30	M	44½	32	36	68	18½	14	18½	28	36	64	21	14	5
36	Ramnath S. Ankale	.	21	M	49½	52	52	104	35½	15	20	48	48	96	42	18	1½
37	Shravana L. Konde	.	20	M	49½	52	57	109	26½	15	30	44	44	88	40½	22	17½
38	Eknath Dagdu Bhalerao	.	20	M	28½	32	32	64	15½	13	62½	..	..	..	..	..	..
39	Laxman Fusa Rokde	.	21	M	17½	57	52	109	42	16	25	48	48	96	54½	18	6½
40	Vishnu Sadhu Rokde	.	24	M	45½	51	52	103	47	18	7½	28	32	60	38	20	25
41	Dhawla D. Kande	.	20	M	47½	52	46	98	17	16	42½	52	50	108	27	16	7½
42	Dagadu M. Kande	.	26	M	45	52	51	103	19	14	3½	36	40	76	32	16	1½
43	Vithal S. Sukate	.	24	M	42½	44	48	92	24½	14	20	40	48	88	39½	18	15
44	Namdev A. Rokade	.	15	M	34½	49	53	102	18½	14	11½	16	24	40	12	16	5
45	Suresh Maruti Gamande	.	22	M	23	34	34	68	19	12	26½	52	48	100	33	15	2½

TOTAL

3772 1620

No. of Charkha sets : 38
Date of starting : 10-1-56

Name : Khadi Samid—Jalpur

From 10th March 1956 to 27th March 1956 From 28th March 1956 to 13th April 1956

Serial No.	Name of operative	Class of operative	Training days	Duration of work (Hours)				Duration of work (Hours)				Duration of work (Hours)				
				Card- ing	Spg.	Total Count of yarn spun	Proda- tion in hanks	Loss Tolas	Card- ing	Spg.	Total Count of yarn spun	Proda- tion in hanks	Loss Tolas	Card- ing	Spg.	Total Count of yarn spun	Proda- tion in hanks
1	2	3		4	5	6	7	8	9	10	11	12	13	14	15	16
			Age Sex													
1	Kamla Devi	.	.	76	27	57	84	17	72	22	20	35	55	17	53	13
2	Geeta Devi	.	.	70	36	40	76	16	48	41	41	42	83	16	60	15
3	Govinde Devi	.	.	82	35	50	85	15	63	20	44	57	101	17	86	21
4	Ganga Devi	.	.	75	28	42	70	15	40	13	30	49	79	16	56	15
5	Nathi Devi	.	.	74	34	53	87	16	59	15	47	59	16	17	74	22
6	Mangash Devi	.	.	75	30	28	58	16	31	10	25	33	58	18	45	13
7	Murani Devi	.	.	76	28	36	64	16	36	13	30	30	60	16	41	12
8	Sujan Devi	.	.	77	40	46	86	16	46	12	37	51	83	16	68	18
9	Shanti Devi	.	.	81	36	56	92	16	69	20	40	63	103	15	94	24
10	Urmila Devi	.	.	80	26	31	57	17	35	11	30	35	65	16	46	10
11	Jugal Bihari	.	M	78	25	50	75	17	53	14	28	36	64	16	53	14
12	Bharat Prasad	.	M	74	47	54	101	15	79	18	44	58	102	16	88	22
13	Sat Dev	.	M	78	44	54	98	17	78	19	46	61	107	16	88	22

14	Shimayal Goswami	.	.	.	.	19	M	78	46	55	101	17	78	19	44	64	108	16	82	19
15	Udasinh	.	.	.	.	18	M	79	30	43	73	17	50	18	41	49	104	16	66	16
16	Bhawan Singh	.	.	.	.	17	M	68	45	54	99	16	76	20	48	56	104	17	78	20
17	Gagn Lal	.	.	.	.	27	M	73	46	46	92	16	52	15	55	60	115	16	120	30
18	Tek Chand	.	.	.	.	23	M	70	41	44	85	16	46	13	20	38	58	16	42	14
19	Sitaram	.	.	.	.	22	M	69	37	43	80	16	64	17	31	53	84	17	97	25
20	Lala I	.	.	.	.	22	M	76	41	51	99	16	69	16	47	54	101	16	91	25
21	Nahulal	.	.	.	.	21	M	74	42	50	92	15	69	15	62	69	16	16	76	26
22	Satyendra Gupta	.	.	.	.	18	M	70	32	49	81	16	66	16	42	39	81	16	6c	17
23	Din Lal Sharma	.	.	.	.	18	M	68	29	74	103	167	104	25	46	62	108	16	80	22
24	Jashyap Datta Mishra	.	.	.	.	25	M	70	38	48	86	17	66	19	46	48	94	16	66	16
25	Vraga Devi	.	.	.	.	35	F	71	28	60	88	16	72	24	46	61	107	17	60	17
26	Pushpa Devi	.	.	.	.	28	F	64	36	51	97	17	74	24	66	66	132	16	147	37
27	Balkrishna Sharma	.	.	.	.	21	M	76	37	67	104	17	79	20	66	64	130	16	105	26
28	Arijua Veer Sharma	.	.	.	.	20	M	69	38	52	90	16	64	16	34	60	94	16	68	17
29	Shivnarain	.	.	.	.	18	M	70	26	36	62	16	33	84	37	33	70	16	42	15
30	Tijan Devi	.	.	.	.	21	F	70	36	69	105	16	86	22	37	54	91	17	91	23
31	Bhuridevi Mali	.	.	.	.	26	F	71	34	81	115	16	80	27	42	72	114	16	71	17
32	Bainfuli Devi	.	.	.	.	27	F	71	43	57	100	16	56	14	42	67	109	116	107	26
33	Neeteedevi	.	.	.	.	28	F	64	39	66	105	16	63	15	62	68	130	16	97	25
34	Dhapan Devi	.	.	.	.	39	F	70	32	66	98	16	78	18	59	54	123	14	164	41
35	Bidani Devi	.	.	.	.	26	F	63	38	64	102	16	74	18	48	48	127	16	96	24
36	Viradi Devi	.	.	.	.	19	F	70	38	50	88	17	57	16	60	75	135	16	82	20
37	Uma Devi	.	.	.	.	30	F	66	39	51	90	18	80	21	56	70	126	16	100	20
38	Leela Devi	.	.	.	.	26	F	66	39	53	92	18	77	28	56	70	126	17	122	31
39	Sunder Devi	.	.	.	.	21	F	66	36	50	86	18	52	14	67	59	126	16	113	29
40	Sarayu Devi	.	.	.	.	31	F	63	37	54	91	18	67	20	50	77	127	15	147	39
41	Bina Devi	.	.	.	.	30	F	63	37	56	93	16	97	25	49	93	142	15	155	39
42	Bhuri Devi	.	.	.	.	27	F	63	39	54	93	16	72	18	51	69	120	15	114	26
43	Bidami Devi	.	.	.	.	28	F	61	39	54	93	15	65	16	47	96	143	15	116	29

Name of Parishramalaya: Bansu

Distr. Jaipur

Date of starting: 10-1-56
Number of Charkha sets: 38

From 10th March 56 to 27th March, 56 From 18th March 56 to 13 April 56

S. No.	Name of operative	Class of Spinner	No. of days of Trg.	Duration of work (hours)								Duration of work (Hours)							
				Card- ing	Spg.	Total hanks	Prod. hanks	Count	Loss Tolas	Card- ing	Spg.	Total hanks	Prod. hanks	Count	Loss Tolas				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
		Age Sex																	
1	Smt. Sundaridevi Swamy	. . .	35 F	67	52½	54½	114	8½	15	..	56½	111½	117	17	..				
2	Smt. Mochsunga	. . .	25 F	65	53½	59½	11½	72	18	..	66½	101½	96	16	..				
3	Smt. Phapan Hiberi	. . .	25 F	63	53	56½	109½	75	17	..	69½	112	95	17	..				
4	Smt. Nanaki Bunkar	. . .	30 F	64	55	55½	110½	66½	15	..	72½	128	50	15	..				
5	Smt. Dhapan Bunkar	. . .	30 F	59	45½	52½	98	54½	16	..	59	64½	35	16	..				
6	Smt. Ganga Nayak	. . .	35 F	68	52½	85	97½	57	16	..	7½	123½	58	15	..				
7	Smt. Muri Gaisaza	. . .	35 F	68	51	57	108	45½	16	..	75	110	53	16	..				
8	Smt. Narayani Purohit	. . .	36 F	63	45	53½	110½	54	16	..	55½	107	75	16	..				
9	Smt. Ramdharibunkar	. . .	24 F	62	40½	63½	104	90	17	..	57½	72	45	17	..				
10	Smt. Muri-devi Swamy	. . .	19 F	60	46	53½	99½	60	16	..	65	107½	65	16	..				
11	Smt. Phuldevi Gaisaza	. . .	32 F	64	64½	35	99½	37	16	..	73	110	53	16	..				
12	Smt. Prabhathi Kathij	. . .	30 F	70	49	58	107	78½	16	..	73½	49	122½	15	..				
13	Smt. Manaphul Brahman	. . .	30 F	40	36½	21	57½	34	17	..	..	..	..	..	..
14	Smt. Ajani Bunkar	. . .	23 F	57	55½	32½	88	16	31	..	47	82½	10	15	..				
15	Smt. Rajni Jogi	. . .	45 F	66	52	53½	105½	29	16	..	70½	120½	59	16	..				
16	Smt. Dapa Hathi	. . .	50 F	572	50½	54½	105	59	15	..	52	107½	62	15	..				
17	Smt. Narayani Nayak	. . .	16 F	55	56	49	105	61	16	..	65	108	67	16	..				

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Age Sex													
18	Smt. Bhavapari Jogi . . .	. . .	65	45½	51½	97	45	17	..	74	49	123	55	16	..
19	Smt. Ganesi Heebra . . .	. . .	64	49½	59	10½	52	16	..	51	59½	110½	113	16	..
20	Smt. Deabhi Dibrakha . . .	. . .	45	46½	52	99	41	17	..	15½	17	32½	20	16	..
21	Smt. Gaurdi Swamy . . .	. . .	60	49½	65½	114½	65	15	..	56	51½	107½	64	16	..
22	Smt. Bhawary Dharoga . . .	. . .	53	47½	55	102½	51	15	..	64½	55	119½	64	16	..
23	Smt. Narayani Heebra . . .	. . .	67	53	57½	110½	53	16	..	55	55½	110½	67	16	..
24	Smt. Bhalisunga . . .	. . .	60	52	50½	102½	57	14	..	78	27½	105½	61	15	..
25	Smt. Prabhati Khatri . . .	. . .	64	51½	51	102½	77	20	..	64½	53½	122	54	20	..
26	Smt. Gulab Nayak . . .	. . .	55	55	59½	114½	61½	17	..	74	39	118	56	16	..
27	Smt. Prabhati Heebra . . .	. . .	50	35½	57½	93	56	17	..	70½	41	111½	64½	16	..
28	Smt. Gulab Swamy . . .	. . .	44	56	50	106	55	16	..	65	55	120	64½	16	..
29	Smt. Shamachandar Sharma . . .	. . .	63	59½	59	118½	75	20	..	55	30	85	57	20	..
30	Shri Chilanji Daroka . . .	. . .	51	44½	53½	98	35	15	..	44½	53½	98	35	..	..
31	Shri Mathulal Varma . . .	. . .	66	50	60	110	101	105	..	50	40	90	63	29	..
32	Shri Sheduram Kumar . . .	. . .	65	58½	39½	98	54	16	..	62½	46½	108½	71	17	..
33	Shri Sarifuddin Khan . . .	. . .	54	44½	34½	79	52	15	..	37	33	70	42½	15	..
34	Shri Fakir Mohomedkhan . . .	. . .	51	32½	46	78½	36	15	..	25	24½	115	27	17	..
35	Shri Durga Prasad . . .	. . .	63	31	49	80	100	16	..	60	53	115	69½	17	..
36	Shri Kalyannath Jogi . . .	. . .	64½	41	59½	100½	53	15	..	32½	75½	108	104	16	..
37	Shri Gokhaleji Mahal . . .	. . .	60	47	44½	91½	30½	15	..	60	44	104	30	15	..
38	Shri Bhavanji Kharik . . .	. . .	61	51½	44	95½	37	16	..	58	48	106	42	16	..
39	Shri Chouthmalji Mina . . .	. . .	64	56	53	109	77	15	..	52	60	11½	99	15	..
40	Shri Sulaimankhan Samod . . .	. . .	36	14½	7½	22	7	16	..	..	..	..	..	..	..
41	Shri Navalishore Sharma . . .	. . .	62	56	45½	101½	64	15	..	60½	48	108½	76	16	..
42	Shri Hanumansahai Nai . . .	. . .	53	40	56	96	39	17	..	21½	19	40½	14½	15	..
43	Shri Chitarmalji Darji . . .	. . .	58	46	48	94	79	16	..	55	50	105	72	16	..
44	Shri Kajodmal Basa . . .	. . .	60	46	59	105	35	14	..	66½	39½	101	30	15	..

45	Shri Mamaraj Sharma .	.	.	.	23	M	69	58½	83	135½	68	15	..	52½	44½	97	60	16	..
46	Shri Glarasilal Gujar .	.	.	.	15	M	36	28	34½	62½	28	14	..	..	..	..	..	..	..
47	Shri Bansidar Bunkar .	.	.	.	10	M	68	32	44	76	17	15	..	47½	32	79½	16	10	..
48	Shri Bansidar Jogi .	.	.	.	14	M	53	58½	34½	93	27½	15	..	56½	51	107½	39	15	..
49	Shri Kailash Narayan Sharma	.	.	.	18	M	56	34½	62½	97	71	15	..	35½	67½	93	89½	15	..
50	Shri Shiva Pratap Sharma .	.	.	.	19	M	54	60	35½	95½	41	15	..	69½	26	95½	48½	15	..
51	Shri Manoharlal Sharma .	.	.	.	19	M	56	34½	62½	97	71	15	..	25½	67½	93	89	15	..
52	Shri Sher Khan Samoth .	.	.	.	10	M	65	64	15½	79½	11	14	..	44½	35½	80	18	15	..
53	Shri Multan Meeja .	.	.	.	18	M	46	45½	48½	94	31	14	..	47	42½	89½	35	15	..
54	Shri Banchidar Sharma .	.	.	.	18	M	46	45	39	84	53	16	..	44½	69	113½	135	16	..
55	Shri Mulasimhaji Rajput .	.	.	.	18	M	53	57	34	91	52	16	..	64½	47½	11½	83	16	..
56	Shri Biratichandra Sharma .	.	.	.	20	M	59	56½	45½	102	67	16	..	61	52½	113½	84	16	..
57	Shri Morilal Jha .	.	.	.	18	M	54	41½	60½	103	109	16	..	41½	62	103	92	16	..
58	Shri Bagwatsahai Ahir .	.	.	.	16	M	48	38	42	81	31	14	..	47	53	110	43½	15	..
59	Shri Babsahal Jha .	.	.	.	25	M	50	49	54	103½	54	16	..	..	..	..	..	..	..
60	Shri Admalji Bunkar .	.	.	.	30	M	51	54½	55½	110	95	20	..	49½	41½	91	69	20	..
61	Shri Pealhhad Sharma .	.	.	.	18	M	50	34½	65½	100	51	15	..	54	46½	100½	80	15	..
62	Shri Ramchandar Sharma .	.	.	.	15	M	44	44½	47½	92	40	16	..	49	47½	96½	36	16	..
63	Shri Bramathilal .	.	.	.	14	M	41	42½	45½	88	40	16	..	49	47½	96½	36	16	..
64	Shri Nathulal Bunkar .	.	.	.	16	M	48	47	64	111	95	18	..	57½	55½	113	87	20	..
65	Shri Kana Nayal .	.	.	.	15	M	48	53½	56	109½	85	17	..	54	61½	115½	101	15	..
66	Shri Gopachandar Sharma .	.	.	.	17	M	50	55	39½	94½	29	16	..	42	42½	84½	48	16	..
67	Shri Ramkishore Sharma .	.	.	.	20	M	56	52½	52½	105	69	16	..	52½	60½	113	96½	17	..
68	Shri Veerasimhaji .	.	.	.	50	M	40	44	52	102	49	16	..	32½	80	112½	123	17	..
69	Shri Ananthlal Sharma .	.	.	.	30	M	31	42	59	101	19	14	..	34½	59	97½	37	16	..
70	Shri Ajodmal Ghar .	.	.	.	30	M	32	45½	56	100½	56	14	..	28½	45½	74	50	14	..

6567 4110

TOTAL . . .

Date of starting : 16-1-56

No. of Charkha sets : 20

Name of Parishramalaya : Gramseva Mandal, Karoli. Dist. Sawai, Rajasthan.

S. No.	Name of operative	Class of spinner	No. of days of trg.	From 10th March 56 to 27th March 56					From 28th March 56 to 13 April 56						
				Duration of work (Hours)					Duration of work (Hours)						
				Card- ing	Spg.	Total	Prod'n. hanks	Count	Loss Tolas	Card- ing	Spg.	Total	Prod'n. hanks	Count	Loss Tolas
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Age Sex													
1	Hariprasad	25 M	73	25	55	80	108	16	32	40	40	80	62	16	18
2	Sarvanlal	20 M	73	25	54	79	108	16	32	40	40	80	62	16	18
3	Kishanlal	28 M	70	23	53	76	66	16	18½	40	40	80	61	16	17½
4	Chhotelal	29 M	73	25	52	77	66	16	18½	40	40	80	82	16	2½
5	Misralal	18 M	68½	25	55	80	87	15	30½	40	40	86	85	18	23½
6	Mularam	18 M	72	25	55	80	87	15	30½	40	40	80	72	15	21½
7	Chatrusinh	20 M	72½	25	55	80	81	15	28½	40	40	80	75	16	22½
8	Devilal	20 M	72½	25	55	80	83	15	30½	40	40	80	67	17	18½
9	Mogilal	19 M	72½	25	53	78	70	16	21	40	40	80	83	16	28
10	Kishanlal	16 M	73½	25	55	80	70	16	21	40	40	80	83	16	28
11	Prasadilal	18 M	70½	25	53	78	68	14	22	40	40	80	81	15	27
12	Chandralal	16 M	71½	25	55	80	68	14	22	40	40	80	82	15	27½
13	Panchidevi	18 F	73½	25	55	80	62	16	18	40	40	80	85	16	28½
14	Bhagvaidevi	25 F	72½	25	55	80	62	16	18	40	40	80	44	16	12
15	Jankidevi	40 F	52½	25	55	80	48	16	15	40	40	80	84	14	25
16	Misradevi	16 F	72½	25	55	80	48	16	15	40	40	80	6	18	1½

17	Kaliadevi	.	.	.	.	63	35	55	80	58	12	18	40	40	80	76	14	24
18	Panbai	.	.	.	.	74	25	55	80	60	12	18	40	40	80	62	14	18
19	Jamnidevi	.	.	.	.	73	25	55	80	55	13	17½	40	40	80	38	14	12
20	Soabai	.	.	.	.	73½	25	55	80	56	16	17	40	40	80	81	18	23
21	Ratnadevi	.	.	.	.	73	25	55	80	70	16	21	40	40	80	84	16	24½
22	Julrodevi	.	.	.	.	74	25	55	80	68	14	22	40	40	80	37	16	6½
23	Badamidevi	.	.	.	.	74	25	55	80	50	16	15	40	40	80	31	18	17
24	Gulladevi	.	.	.	.	78	25	50	80	50	16	15	40	40	80	78	15	28
25	Badal devi	.	.	.	.	78	25	53	78	48	18	14	40	40	80	45	16	13½
26	Bhuribai	.	.	.	.	76½	25	53	78	48	18	10	40	40	80	45	20	12½
27	Kasturi	.	.	.	.	72	25	55	80	34	16	10	40	40	80	14	18	3½
28	Narayanibai	.	.	.	.	78	25	55	80	50	18	13	40	40	80	35	20	8½
29	Kokiladevi	.	.	.	.	76	25	48	73	51	16	15	40	40	80	26	18	6½
30	Gange	.	.	.	.	58	25	53	78	34	15	10½	40	40	80	13	16	4
31	Gangadevi	.	.	.	.	58	25	55	80	36	14	10½	40	40	80	13	16	4
32	Sampatibai	.	.	.	.	74	25	53	78	33	16	8½	40	40	80	14	18	4
33	Rukhamani	.	.	.	.	53	25	53	78	34	16	8½	40	40	80	15	18	4½
34	Gyashidevi	.	.	.	.	33½	25	55	80	35	14	10½	40	40	80	14	16	4
35	Bhuridevi	.	.	.	.	68	25	55	80	50	20	12½	40	40	80	36	24	8½
36	Bhagavatibai	.	.	.	.	66	25	55	80	50	16	15	40	40	80	45	17	13
37	Kampuribai	.	.	.	.	50	25	55	80	34	15	10½	40	40	80	13	16	3½
38	Saraswati	.	.	.	.	67	25	55	80	40	18	11½	40	40	80	30	20	6½
39	Singalal	.	.	.	.	72	25	55	80	71	16	21	40	40	80	163	14	60
40	Sultankhan	.	.	.	.	76	25	52	77	45	16	13½	40	40	80	136	14	42½

TOTAL

3200 2197

S. No.	Name of operative	Class of operative	No. of days of attendance	From 10th March 56 to 27th March 56										From 28th March 56 to 13th April 56																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111</

19	P. Devachamar.	.	.	.	52	33½	56½	89	35	11	15½	6	37½	43½	36	10	4
20	Lala P. Kishan	.	.	.	55	43½	51½	95	28	10	19	31	54	85	40	12	13
21	Mohan P. Lalu	.	.	.	39	38½	53	91½	31	9	16	42	48½	90½	36	12	14
22	B. P. Lala	.	.	.	55	36	48	84	30	8	15	36	53½	89½	57	10	14
23	M. P. Kishana.	.	.	.	34	32½	49	81½	34	10	15	15	24	39	26½	11	4½
24	A. P. Pala	.	.	.	55	38½	55½	94	30½	9	16	40	49	89	52	11	15
25	D. P. Nara	.	.	.	51	37½	61	98½	29	9	15½	49½	51½	92	47½	12	15
26	U. P. Issa	.	.	.	41	47½	49	96½	25½	10	16	30½	35	65½	34½	12	10
27	M. P. Gangaram	.	.	.	40	38½	63	101½	26	10	14	25	35	60	21	12	8
28	G. P. Jagannath	.	.	.	40	44	50	94	26½	9	16	41	51	92	31	11	13½
29	N. P. Akade	.	.	.	41	33	64	97	26	10	16	41	50½	91½	36	11	13
30	G. P. Mura	.	.	.	27	57	40½	97½	19	10	11	44	42	86	48	11	19
31	K. P. Khudabaksh	.	.	.	28	57	43	100	14	9	10	45½	49½	95	42	12	15
32	Radhakishan R. P.	.	.	.	28	65	48	111	11	9	11½	42½	58	190½	41	14	14
33	G. P. Pardha	.	.	.	28	56	40	96	10	9	10	42	59	101	42½	13	14
34	N. P. Surajmal.	.	.	.	28	56½	39	95½	9	9	12	43	50	93	44	12	15
35	M. P. Roopa	.	.	.	27	70	30	100	10½	9	11	42	50	92	36½	12	14
36	M. P. Oda	.	.	.	19	62	32½	94½	8	8	10½	21	19½	40½	14½	11	5½
37	M. P. Pratapsinha	.	.	.	25	49	40	88	7½	9	9	22½	30½	53	21½	11	7
38	D. P. Ghissinha	.	.	.	24	42	29	71	9½	9	8	37	48	85	41	12	12
39	D. P. Dhalabai	.	.	.	35	52	25	77	9	8	8	28	54	82	30	12	10
40	G. P. Panna	.	.	.	25	33	35	68	12	9	9	34	55	89	36	13	11
41	U. P. Nanga	.	.	.	25	41	25½	67½	12	10	9	33	59	92	34	12	11
42	D. P. Ankha	.	.	.	25	47	32	79	8½	8	9	15	14½	29½	15	9	4
43	K. P. Bhavra	.	.	.	21	24	34	58	11	8	8	23	31½	54½	20	11	19
44	N. P. Mura	.	.	.	25	53½	31	84½	8½	8	7½	47	46	93	36	12	13
45	H. P. Lala	.	.	.	25	53½	29½	83	7	8	7	41	52½	93½	37	10	12
46	Madanlal	.	.	.	36	40	30	70	70	13	6	37	40	77	20	..	..
47	Mavalal	.	.	.	36	39	33	72	19	13	13	48	35	83	20	..	..
48	M. P. Padma	.	.	.	25	54	33	83	9	8	8	38	58	96	39	12	13

TOTAL

No. 92

Name of Parishramalaya : SABALGARH (M.B.)

Date of starting : 16-1-56
Number of Charkha sets : 20

S. No.	Name of operative	Class of spinner	No. of days of Trg.	From 10th March 56 to 27th March 56				From 28th March 56 to 13th April 56				Total			
				Duration of work (Hours)				Duration of work (Hours)				Count			
				Card- ing	Spg.	Total hanks	Prod n.	Count	Loss Tolas	Card- ing	Spg.	Total hanks	Prod n.	Count	Loss Tolas
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Minakumari	Age 14	57	45	45	90	30	11	12½						
2	Gangadevi	35	59	45	45	90	30	11	12½						
3	Shantibai	28	42												
4	Ramdevibai	35	58	45	45	90	31	10	15½						
5	Lalabai	35	73	45	45	90	62	15	23½	50	70	120	120	18	40
6	Pannibai	40	74	45	45	90	62	15	22½	50	70	120	120	18	40
7	Ramheshsharma	22	33												
8	Sonibai	45	66	45	45	90	44	12	24½	65	55	120	60	12	30
9	Sukhbai	50	71	45	45	90	56	12	29½	65	55	120	120	13	60
10	Godavaribai	25	71	45	45	90	56	12	29½	65	55	120	120	13	60
11	Krantibai	30	72	45	45	90	44	12	17½	60	60	120	60	14	25
12	Ratanbai	40	29												
13	Shivcharan Shukla	20	67	45	45	90	36	15	13	60	60	120	60	14	25
14	Sureshchandra	19	68	45	45	90	36	15	12	60	60	120	60	14	25
15	V. K. Deshpande	30	55	45	45	90	74	14	28	60	60	120	135	14	60
16	Rajgopalji	18	54	45	45	90	59½	12	26	20	20	40	25	14	10
17	Saraswatibai	55	67	45	45	90	67	14	24	60	60	120	120	14	55
18	Harivilas	18	68	45	45	90	59½	12	26	55	65	120	120	14	55

No. 93

Name of Parishramalaya : SHIVPURI (M. B.)

Date of starting : 9-1-56.

Number of Charkha sets : 3c

S. No.	Name of operative	Class of Spinner	No. of days of Trg.	From 10th March 56 to 27th March 56				From 28th March 56 to 13th April 56							
				Duration of work (Hours)		Prodn. Count Tolas		Duration of work (Hours)		Prodn. Count Tolas					
				Card- ing	Spg. Total	Card- ing	Spg. Total	Card- ing	Spg. Total	Card- ing	Spg. Total				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	6
		Age													
1	Kesarbai	.	.	60	60	120	60	28	20	35	35	70	76	20	23
2	Shantabai	.	.	60	60	120	37	18	13	28	28	56	42	16	16
3	Radhabai	.	.	60	60	120	45	13	14	35	35	70	61	16	26
4	Narayandevid	.	.	40	35	75	31	13	15	35	35	70	59	14	26
5	Narayanidevid	.	.	60	60	120	74	19	24	60	60	120	90	18	29
6	Vimladevi	.	.	60	60	120	75	19	24	60	60	120	102	19	32
7	Dayaram Koli	.	.	60	60	120	70	16	16	60	60	120	88	33	33
8	Harkorbai	.	.	60	60	120	69	16	16	60	60	120	87	16	33
9	Vraimohan	.	.	60	60	120	45	16	20	35	35	70	62	16	20
10	Shyamsaran	.	.	35	35	70	29	16	12	28	28	56	24	16	12
11	Sunarbai	.	.	60	60	120	68	14	14	60	60	120	91	18	31
12	Ranibai	.	.	60	60	120	68	14	14	60	60	120	103	18	35
13	Kamladevi	.	.	60	60	120	45	16	16	35	35	70	62	17	21

39	Mangalchandra	.	.	.	18	48	30	30	30	60	34	16	13	60	60	120	77	20	22
40	Ramdas	.	.	.	19	33	32	38	70	22	16	8	35	35	35	70	60	20	30
41	Sukhlal	.	.	.	16	39	30	35	65	17	14	8	45	45	45	90	37	14	15
42	Gyrsiram	.	.	.	15	35	30	35	65	17	14	7	35	35	35	70	60	15	22
43	Magoli Koli	.	.	.	12	42	60	60	120	37	14	16	60	60	60	120	64	14	27
44	Savitridevi	.	.	.	35	52	60	60	120	53	16	21	60	60	60	120	91	17	33
45	Sugribai	.	.	.	50	45	40	40	80	35	14	18	35	35	35	70	62	10	30
46	Maksudanbai	.	.	.	30	43	40	40	80	35	14	18	42	42	42	84	39	17	15
47	Aryaranbai	.	.	.	35	48	60	60	120	45	14	20	60	60	60	120	80	15	32
48	Anvaribai	.	.	.	13	46	60	60	120	40	14	16	28	28	28	56	45	16	17
49	Hajrabai	.	.	.	50	44	60	60	120	47	12	21	35	35	35	70	63	16	27
50	Jamilbai	.	.	.	13	40	45	37	72	21	11	9	42	42	42	84	50	15	23
51	Narsavanvai	.	.	.	35	43	40	38	78	26	11	15	28	28	28	56	38	12	24
52	Varsharnbai	.	.	.	30	35	30	30	60	50	12	15	28	28	28	56		12	24
53	Bairnabai	.	.	.	25	40	30	30	60	23	12	12	28	28	28	56	45	16	22
54	Shahjadibai	.	.	.	20	40	30	30	60	23	12	12	42	42	42	84	45	16	22
55	Nurjahbai	.	.	.	35	37	30	30	60	20	14	9	28	28	28	56	44	16	18
56	Satinabai	.	.	.	18	39	30	30	60	20	14	9	28	28	28	56	48	16	20
57	Sugarabai	.	.	.	40	37	30	30	60	25	13	12	42	42	42	84	50	14	21
58	Sagarabai	.	.	.	20	38	30	30	60	24	13	11	42	42	42	84	55	14	21
59	Hasinabai	.	.	.	14	34	30	30	60	15	12	8	42	42	42	84	25	12	11
60	Gafuralbai	.	.	.	35	33	30	30	60	14	12	8	28	28	28	56	25	12	11
61	Hajrabai	.	.	.	25	33	30	30	60	36	13	16	35	35	35	70	64	14	25

TOTAL . . . 4995 3973

Date of starting : 23-1-56
Number of Charkha sets : 17

S. No.	Name of operative]	Class of Spinner	No. of days of Trg.]	From 10th March 56 to 27th March 56				From 28th March 56 to 13th April 56							
				Duration of work (Hours)		Prodn. Count	Loss	Duration of work (Hours)		Prodn. Count	Loss				
				Card- ing.	Spg. Total	banks	Tolas	Card- ing.	Spg. Total	banks	Tolas				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Age Sex													
1	Sri Harishchandraji	42 M	66	60	60	120	62	16	31	40	40	80	47	16	23
2	Sri Devilal Sharma	52 M	58½	60	60	120	51	16	25½	12	12	24	16	1	8
3	Sri Mulchandji .	21 M	67	60	60	120	58	12	29	48	48	96	35	12	17½
4	Sri Gedal .	22 M	58	60	60	120	70	15	48	8	8	16	5	13	3½
5	Sri Rajaram .	32 M	71	60	60	120	43	22	29½	60	60	120	55	18	37½
6	Sri Devilalji Zalaji	22 M	47	60	60	120	51	13	45	..	..	..	..	..	..
7	Sri Sardarkhan .	18 M	58½	54	54	108	31	31	21	16	16	32	2	16	1
8	Sri Savarkhan .	17 M	66½	60	60	120	43	14	29½	40	40	80	10	13	6½
9	Sri Durgasingh .	21 M	61	60	60	120	31½	12	22	20	20	40	10	13	6½
10	Sri Shivnarayan .	19 M	57	60	60	120	51	13	35	40	40	80	66	12	45
11	Shm. Taradevi Saksena	45 F	57	60	60	120	39	19	26½	60	60	120	41	16	28
12	Shm. Kantabai Durve	34 F	71	60	60	120	60	16	41	60	60	120	64	16	44
13	Shm. Sushilabai	36 F	59½	56	56	112	32	14	22	40	40	80	32	16	22
14	Shm. Anandibai	40 F	58½	60	60	120	68	12	46	48	48	96	83	18	57
15	Shm. Gangabai	40 F	55	60	60	120	45	16	41	32	32	64	40	18	27½

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Age Sex													
45	Shm. Puribai	.	.	.	.	.	.	.	.	.	.	.	.	.	.
46	Sri Ishak Mohamad	.	.	.	.	.	.	.	.	.	.	.	.	.	.
47	Shm. Latifbano	.	.	.	.	.	.	.	.	.	.	.	.	.	.
48	Shm. Nannabai	.	.	.	.	.	.	.	.	.	.	.	.	.	.
49	Shri Muhamad Yasin	.	.	.	.	.	.	.	.	.	.	.	.	.	.
50	Shm. Kamrabai	.	.	.	.	.	.	.	.	.	.	.	.	.	.
51	Shm. Pushkarkhani	.	.	.	.	.	.	29	21	.	.	.	11	12	8

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Age Sex
15	Kesharbai	.	.	70	50	69	109	70	20	10	35	45	80	37	16	5
16	Ansuyabai	.	.	43	50	69	109	58	14	15	..	..	..	..	..	..
17	Mohanibai	.	.	32	..	..	..	..	..	..	..	..	..	..	..	..
18	Hira Lal Yadav	.	.	60	40	40	80	45	14	10	40	40	80	48	14	10
19	Anandibai	.	.	48	..	..	..	12	12	31	..	..	..	..	..	..
20	Bhagrathbai	.	.	49	50	54	104	59	13	15	15	25	40	18	14	8½
21	Subhadrabai	.	.	13	..	..	..	16	15	5	5	65	..	15	..	3
22	Ladubai	.	.	64	..	..	..	15	15	5	25	35	60	15	14	5
23	Rukmanibai	.	.	31	..	..	..	..	..	..	..	..	..	..	..	..
24	Kesharbai Marud	.	.	1	..	..	..	..	..	..	..	..	..	..	..	..
25	Ashabai	.	.	32	..	..	..	..	..	..	..	..	..	..	..	..
26	Manchhibai	.	.	61	40	50	90	43	13	9	30	50	80	29	14	4
27	Sitabai	.	.	6	..	..	..	..	..	..	..	..	..	..	..	..
28	Parubai	.	.	56	..	..	..	28	14	10	15	25	40	11	16	5
29	Misarbai	.	.	60	50	54	104	56	..	20	35	35	70	17	16	5
30	Parvatibai	.	.	12	..	..	..	..	..	..	..	..	..	..	..	..
31	Vimla Chopadekar	.	.	..	..	..	..	..	..	..	3	4	7	9	16	1
32	Ansuyabai	.	.	61	33	45	78	39	14	17	35	45	80	56	16	6
33	Godavariora	.	.	..	50	54	104	60	15	18	40	60	100	120	16	3
34	Radhabai	.	.	19	..	..	..	..	..	..	..	..	..	..	..	..
35	Basanti	.	.	49	..	..	..	21	15	9	10	12	22	109	13	4
36	Jankibai	.	.	65	..	..	..	27	10	30	60	60	120	37	10	35
37	Gujraribai	.	.	56	40	44	84	35	13	18	25	35	60	40	13	22
38	Prabhu Kamthe	.	.	..	..	..	..	..	..	..	..	..	..	..	..	..
39	Bithal	.	.	..	..	..	..	..	..	..	..	..	..	..	..	..
40	Mansinh	.	.	55	38	40	78	39	13	28	44	50	94	23	16	14

Date of starting : 1-1-56
Number of Charkha sets: 17

Name of Parishramalya : Meenchenta, Kozhikode (Kerala)

S. No.	Name of Operative	Class of Spinner	No. of days of Trg.	From 10th March 56 to 27th March 56				From 28th March 56 to 13th April 1956							
				Duration of work (hours)				Duration of work (hours)							
				Card- ing	Spg.	Total Prodn. hanks	Count hanks	Loss Tolas	Card- ing	Spg.	Total Prodn. hanks	Count hanks	Loss Tolas		
1	V. Unniatha	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	V. Kuttimalu	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3	Pechan Laxmi	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	P. V. Laxmi	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5	V. V. Mahadevi	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	M. V. Theikutty	.	.	.	.	.	.	.	.	.	.	.	.	.	.
7	P. Mahadevi	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8	P. Kalyani	.	.	.	.	.	.	.	.	.	.	.	.	.	.
9	C. V. Amnu	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	K. V. Janaki	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	E. V. Chinnamu	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	M. Devi	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	C. Devaki	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	C. V. Janaki	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	M. V. Parmeshwaram	.	.	.	.	.	.	.	.	.	.	.	.	.	.

after working 16 days.

after working for a week.

after 16 February.

18	T. Somlam	.	.	.	.	15	F	62½	56	60	116	51	18	23½	54	66	120	73	18	10
19	Sonsunderam	.	.	.	.	19	F	56	50	54	104	46	18	11	50	52	102	66	17	3½
20	K.V. Pushpavalli	.	.	.	.	15	F	60	60	60	120	42	16	17	60	52	112	38	16	11½
21	K. Maratha	.	.	.	.	13	F	59	62	58	120	53	16	4½	65	55	120	65	16	10
22	C. Bhargavi	.	.	.	.	15	F	58	64	56	120	54	15	23	52	60	112	35	15	10
23	K. Vishalaxi	.	.	.	.	18	F	58½	58	62	120	50	15	12	60	60	120	59	16	4
24	A. Vishlaxi	.	.	.	.	15	F	55½	60	52	112	38	16	10	70	50	120	57	16	10
25	M. Sarojini	.	.	.	.	15	F	57	52	56	108	39	15	5	65	55	120	46	15	14
26	T. Laxmi	.	.	.	.	17	F	50½	60	60	120	25	16	11	54	66	120	35	16	16½
27	P. Saraswathi	.	.	.	.	17	F	46½	55	65	120	44	17	5	50	58	108	37	17	13½
28	K. Vellakuthy	.	.	.	.	22	F	40	52	60	112	56	18	15	40	58	88	45	18	10
29	U. Radha	.	.	.	.	15	F	45	66	52	120	36	16	8	60	60	120	33	16	6½
30	C. Rugmini	.	.	.	.	17	F	44	57	63	120	52	17	8½	52	60	112	51	17	15

TOTAL .

3450 1703

Date of starting 22-1-56
Number of Charkha sets: 12.

Name of Parishramalaya : MUDAPLOOLLOOR VIA PALGHAT (KERALA)

S.No.	Name of operative.	Class of Spinner	No. of days of Trg.	From 10th March 56 to 27th March 56				From 28th March 56 to 13th April 56			
				Duration of work (Hours)				Duration of work (Hours)			
				Card- ing	Spg. ing	Total Prodn. hanks	Count hanks	Card- ing	Spg. ing	Total Prodn. hanks	Count hanks	Loss Tolas

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Age Sex

1	A. Surilla	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	P. Sathin Bhann	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3	P.R. Vuni	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	P.V. Kamalani	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5	P. Somasundari	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	P. Subhadra	.	.	.	.	.	.	.	.	.	.	.	.	.	.
7	K. Kullanikutty	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8	K. Damayanthi	.	.	.	.	.	.	.	.	.	.	.	.	.	.
9	N. Vijaya (Jayadevi)	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	N. Padmalochna	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	P. V. Radha	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12	E. Sathyabhama	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	N. Minakshikutty	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14	K. Parvathi	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15	T. Padmavathi	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16	C. Vinu	.	.	.	.	.	.	.	.	.	.	.	.	.	.

17	S. Thanammal	.	.	.	19	F	38	60	60	120	14	12	20	60	60	29	29	12	25
18	S. Gomathy	.	.	.	32	F	38	60	60	120	14	12	20	60	60	120	29	12	25
19	M.S. Danammal	.	.	.	20	F	36	52	52	104	9	10	15	60	60	120	16	8	15
20	Isakkiammai	.	.	.	35	F	37	60	60	120	9	10	15	56	56	112	11	8	10
21	M. Shanmugham Pillai	.	.	.	22	M	36	52	52	104	21	13	30	60	60	120	33	13	30
22	S. Velapan	.	.	.	18	M	38	60	60	120	24	13	30	60	60	120	35	13	30
23	S. Narayana Pillai	.	.	.	21	M	38	60	60	120	19	13	30	60	60	120	36	13	28
24	S. Ramakrishnan	.	.	.	22	M	34	56	56	112	15	10	15	48	48	96	21	10	15
25	B. Suryaharaya Pillai	.	.	.	28	M	35	52	52	104	9	10	10	56	56	112	28	10	10
26	C.C. Thanu Pillai	.	.	.	28	M	35	52	52	104	9	10	10	56	56	112	28	10	20
27	N. Madusuthanam	.	.	.	19	M	38	60	60	120	25	13	26	60	60	120	28	14	10
28	H. Narayana Pillai	.	.	.	38	M	37	56	56	112	13	10	15	60	60	120	35	10	25
29	N. Annmuga Perumal	.	.	.	23	M	38	60	60	120	19	14	20	60	60	120	27	11	20
30	S. Gangadhara Pillai	.	.	.	18	M	37	56	56	112	18	10	15	60	60	120	28	8	20
31	C. Pernnammai	.	.	.	16	F	38	60	60	120	11	10	15	60	60	120	8	26	20
32	S. Isakkiammai	.	.	.	16	F	37	60	60	120	11	10	25	60	60	120	28	8	20
33	P. Neelammal	.	.	.	15	F	37	56	56	112	13	8	15	60	60	120	28	10	20
34	S. Paradesi	.	.	.	30	M	38	60	60	120	13	8	15	60	60	120	34	10	25
35	P. Cellammal	.	.	.	26	F	38	63	60	120	16	10	20	60	60	120	32	12	35
36	M. Selvabhai	.	.	.	25	F	38	60	60	120	17	10	20	60	60	120	32	12	25
37	V. V. Jajalakshmi	.	.	.	17	F	32	56	56	112	5	8	10	40	40	80	6	10	5
38	V. Subbammal	.	.	.	16	F	36	52	52	104	3	8	5	60	60	120	15	10	10
39	P. Divana Pillai	.	.	.	15	M	38	60	60	120	6	8	10	60	60	120	16	8	10
40	V. Azhakammal	.	.	.	16	F	34	60	60	120	6	8	10	44	44	88	12	8	15

TOTAL

4600 1045



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APPENDIX XI

Report on sampling of performance data in the parishramalayas at Meerut. This sampling was arranged by the Committee.



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APPENDIX XI

REPORT ON SAMPLING OF PERFORMANCE DATA IN THE PARISHRAMALAYA AT MEERUT. THIS SAMPLING WAS ARRANGED BY THE COMMITTEE.

*Report of the Principal, Government Central Textile Institute,
Kanpur, regarding the observations made at Ambar Charkha
Training Class, Meerut, under Shri Gandhi Ashram, Meerut.*

On 11th of May 1956, Shrimati P. Johari, Dy. Secretary, Ministry of Production and the Secretary of Ambar Charkha Committee, asked that observations may be recorded at the *Parishramalaya*, Meerut, where training in Ambar Charkha is going on under Shri Gandhi Ashram, Meerut. Accordingly I visited Meerut on the 12th and discussed with the authorities of the Ashram the procedure for allowing facilities for proper record of the observations at the class.

The class under reference was meant to impart a sort of general training to the persons who had been selected by the Ashram from Ambar Charkha class and whom the Ashram proposed to employ in various capacities in the khadi organizations. The Ashram authorities, therefore, pointed out that the trainees were at present working on Ambar Charkha and would require some time to gain speed and to set right the Ambar Charkha for operation. 13th being Sunday it was decided that the preparatory operations may start from Monday the 14th. May 14, 15 and 16, were allowed to the trainees to complete the preliminary work. Under the circumstances the observations could be made only on the 17th and 18th and the results were compiled at Kanpur on the 19th.

Comparison of the data collected on the 17th and 18th will show that better performance was given on the 18th and if observations were to be continued for a week or so, still better results would have been attained.

The observations were compiled for ten trainees and in four hours working the number of hanks works out from 7 to 9.2, as detailed below:

Sl. No.	Name of the Trainee	Counts of Yarn	Production per 4 hours in hanks
1	Sri Ved Prakash	24's	7½
2	Sri Chedda Lal	24½'s	7½
3	Sri Kishori Lal	18½'s	8.8
4	Sri Mahendra	22's	7.0
5	Sri Raj Kumar	21's	9.2
6	Sri Uma Shankar	27's	8.0
7	Sri Narendra	20's	8½
8	Sri Chandra Kishore	21's	8.0
9	Sri Betabji	19's	7.2
10	Sri Sri Gopal	20's	7½

These figures give an idea of the speed in case of the counts that the scheme of the Board envisages to be spun at Ambar charkha.

Since *Dhunai Mudia* were not in order, the Ashram supplied cotton carded by paddle carding machine. Therefore, no observations could be recorded regarding the work of *Dhunai Mudia*.

The preparatory operation of making rovings for spinning was done as under:—

No. of drawing operation, 1/4/4/3.

No. of roving operation, 1/3/3.

It will be appreciated that the time being very short more detailed observations were not possible.

(Sd.) J. N. SINGH,

Principal,

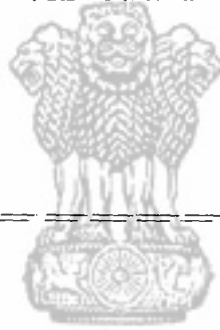
Govt Central Textile Institute,
Kanpur.

Dated May 19, 1956.



APPENDIX XII

Miscellaneous



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APPENDIX XII

Miscellaneous

I

NO. A.C.C./56

Government of India
MINISTRY OF PRODUCTION

New Delhi, the 10th May 1956

To

The Chairman,
All India Khadi and Village Industries Board,
Post Box No. 482.
Bombay—1.

Dear Sir,

At its last meeting in Puttur (Andhra State) on 8th May, 1956, the Ambar Charkha Committee decided to request the Board to furnish replies to the following questions:—

- (i) Does the Board's Ambar Charkha scheme envisage the continuation of subsidy after 1960-61? If so, on what assumptions? Is it contemplated that the subsidy would eventually be eliminated?
- (ii) Is the Ambar Charkha Programme of the Board to be a scheme for supplying 15 million yards of cloth, to meet the extended requirements of cloth in the Second Five Year Plan or is the scheme to be implemented as an integral part of the development of the village economy as a whole? Is it to be correlated to the schemes of development of other village industries and agriculture?
- (iii) To what extent can the Ambar Charkha Programme be incorporated in the scheme of self-sufficiency of each village or a group of villages? Would it be feasible to eliminate competition between mill-made and Ambar cloth in the self-sufficiency scheme?

I would be grateful, if replies to the above questions are furnished at your earliest convenience but not later than the 16th of this month. I am sorry for the inconvenience that this short notice may cause to your organisation. But, since the Committee is anxious to

submit its report by the 25th of this month, it will be greatly appreciated if you would kindly furnish the information in time.

Yours faithfully,

(Sd.) Mrs. P. Johari,
Secy. Ambar Charkha Committee.

GOVERNMENT OF INDIA
MINISTRY OF PRODUCTION
ALL INDIA KHADI AND VILLAGE INDUSTRIES BOARD

101, Queens Road, Bombay—1.

Date: 17th May, 1956.

NO. ECR/AC/56

Dear Smt. Johari,

SUB.—Certain information asked for by the Ambar Charkha Committee

Will you kindly refer to your circular letter No. A.C.C./56, dated the 10th May, 1956 addressed to the Chairman of the All India Khadi and Village Industries Board asking for replies to certain questions connected with the Board's Ambar Charkha Scheme. I am to furnish below the replies to the three questions posed therein:—

Question (1).—It is too early to say whether or not the need for subsidy will continue after 1960-61. It may, however, be indicated that the rate of the subsidy that may be needed after 1960-61 may probably be smaller than during the Second Plan period, as the improvement of the implements now being investigated may improve their efficiency and raise their respective productivity. While the Board desires the elimination of the subsidy at some future date, it is in no position today to indicate when it will be able to do so. As far as the Second Five-Year Plan period is concerned, there will be need for the payment of a subsidy.

Question (2).—The Ambar Charkha Programme of the Board has already been delayed by several months, and the Board is, therefore, in no position to implement its first-year programme. In other words, with only four effective years of the Plan period left

to implement its programme, if it is sanctioned in all its parts and in time, the Board may be able to produce about 1000 million yards of cloth by 1960-61. Manufacture of 1500 million yards through Ambar yarn woven on handlooms and the attempt to improve the economic conditions in the villages or their economic status are not two distinct programmes, but a common programme with a common purpose. The main approach of the Board's programme is that the Ambar Charkha can help to raise the economic status of the villages through diversifying production and employment in the rural areas. Consequently, it will form a part of its other programmes as well, and wherever possible will be coordinated with them.

Question (3).—Ambar Charkha is an ideal implement to promote self-sufficiency in cloth; but how far the scheme for self-sufficiency in cloth can be successful depends very largely on the continuation of the subsidy now being paid. The Board takes the view, judging by the experience of the last year's outlay on *vastraswavalamban*, that not less than 25 per cent. of the output of cloth is likely to be consumed by the spinners, weavers and their respective families. The Board is of the opinion that a self-sufficiency scheme implies absence of the competition and consequently, the question of eliminating competition with mill-made cloth in a self-sufficiency scheme does not arise.

Yours sincerely,

(Sd.) P. S. Vaidyanathan,

To

Mrs. P. Johari,
Deputy Secretary to the Govt. of India,
Ministry of Production,
Thapar House, Janpath,
New Delhi.

II

A.T.I.R.A. REPORT

TEST REPORT ON THE SUNDAR MODEL OF AMBAR CHARKHA

Introduction

The most important improvement introduced in the Sundar Model of the Ambar Charkha is the provision of about 13 ball bearings made at a very low cost, in place of the wooden or metal bushings used in the regular model. Other differences are provision of metal reels for rovings fed to the Charkha and the use of oil bolsters for spindles. On account of the use of ball bearings the Charkha runs much lighter in comparison to the original Ambar Model. Such a modified Sundar Model was received at A.T.I.R.A. towards the middle of April from the Ambar Charkha Samiti for testing its performance in the light of the quality and quantity of yarn spun on it. The worker who was also provided by the Samiti, was directed in the beginning to carry out the preliminary qualitative spinning experiments with the rovings of *Vijay* cotton (Ag. mark) carded as well as combed, made at the pilot spinning mill of A.T.I.R.A. During the later production tests rovings were made

by the same worker from the *Vijay* bale cotton on a *Belani* machine and yarns were spun on the *Sundar* as well as on one of the normal *Ambar* charkhas available at A.T.I.R.A. This report thus, deals both with the preliminary tests done on the quality of yarn spun on one *Sundar* Model *Ambar* charkha for a period of fourteen days (between 21st April, 1956 to 2nd May, 1956, and 22nd May, 1956 to 23rd May, 1956) and the comparative quality as well as the production tests carried out on the *Sundar* and the normal *Ambar* charkha by the same worker for a similar period (from 3rd May, 1956 to 16th May, 1956). The validity of the conclusions drawn from these experiments are obviously limited by the fact that the results relate to only one charkha operated by only one worker spinning over a period of a few days only.

Materials used

In the preliminary tests rovings of 2.5 and 3.5 hank obtained at the Pilot Mill from combed *Vijay* (Ag. mark) cotton were used for nominal counts 20, 24 and 28 while the 3.1 hank roving from the same carded cotton was also used for spinning 28's count yarn. Some quantity of 1.38 hank roving also obtained from carded *Vijay* (Ag. mark) at the Pilot Mill was used to make 1.7, 1.9 and 2.4 rovings on the *Belani* for spinning to about 19's count on the *Sundar* charkha with different drafts. In all these studies, the mill roving was selected as the starting point in order to have an initial raw material of as uniform a quality as possible.

In the final series of production experiments, *Vijay* bale cotton was used to make 2.5 hank on the *Belani* and spun to 20's count on the *Sundar* as well as the normal *Ambar* charkhas. In the preliminary experiments both the paper and the flanged bobbins were used but in the final ones only the paper bobbins were used.

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Experimental

Preliminary Tests.—Roving of 3.5 and 2.5 hank were spun to 28's and 20's respectively with a draft of 8 on the *Sundar* model using for each count both the paper and the flanged bobbins. Again both the types of bobbins were used for spinning 24's yarn from only 3.5 hank roving employing a draft of 7. In order to test the efficacy of the top roller spring weighting system two levels of spring pressure (medium and full) were used with the 7 as well as the 8 drafts. Medium pressure was obtained by unscrewing the top check nut by half a revolution. With the full spring pressure, a draft of 10 was also used and 24's yarn was spun from 2.5 hank roving, on both the paper and the flanged bobbins. Yarn quality tests for the count, lea strength and irregularity were done. It was possible to make a study from this investigation of the effect of varying the draft, the top roller pressure and use of paper bobbins, on the quality of yarn spun by the *Sundar* model of *Ambar* charkha. Roving of 2.6 hank made on *Belani* from *Vijay*, cotton and a mill roving 3.5 hank (from carded *Vijay* Ag. mark) were spun respectively to 20's and 28's on the *Sundar* and the normal *Ambar* charkha and various yarn tests were made. Also from a mill inter of 1.38

hank (obtained from carded Vijay Ag mark in Pilot Mill) rovings of 1.7, 1.9 and 2.4 were made by processing it on a *Belani* once in all cases but with 4, 3 and 3 ends up in the creel and drafts of 5, 4.5 and 5 respectively. These were spun to a nominal 19's count on the Sundar Model with theoretical drafts of 12, 10 and 8 and all the yarn tests were carried out. Tables 1, 2 and 3 in the Appendix show the details of the tests.

Throughout the present study on the Sundar charkha, the spindle wharve diameter was $3/16''$. In order to vary the turns per inch for different counts, the front roller delivery was maintained at about 6" per revolution of main hand wheel while spinning 20's count yarn and at 5.5" while spinning 24's and 28's. Once, however, a delivery of 6" was employed for 28's count also. 5/0, 4/0 and 3/0 travellers were used for spinning 28's, 24's and 20's count yarns respectively. The tension of each spindle band was increased when needed by transferring it from one groove to another of the wooden spindle driving roller. Whenever the spring band of the main handle wheel had become slack it was retightened by cutting a little of it and piecing the ends again. The diameter of the paper bobbins used was $9/16''$ (the same as those used for the normal Ambar charkha). The draft on this charkha was checked quite often while working and also after effecting any change in draft.

On the normal Ambar charkha, spindles with wharve diameters of $5/16''$ and $9/32''$ were used for spinning 20's and 28's count yarns respectively. The front roller delivery was 6" per revolution of main handle wheel. Travellers used for the different counts were the same as those used on the Sundar model for the corresponding counts.

Comparative Production and Quality Test

As mentioned before, Vijay bale cotton was used as raw material. The worker used to clean and open the cotton on the Dhunai Modhia and make enough of 2.5 hank rovings on a *Belani*, using eight processes and a draft of 5.0. Every alternate day the previous day's rovings were spun on the Sundar as well as the normal Ambar charkha. Six days were spent in making rovings and the other six days in spinning. The draft employed on both the charkhas was 8.0. Various production and waste records were made for the *Dhunai Modhia* and the *Belani* working. The overall time as well as the actual spinning time on the charkhas and the end breaks in the process were recorded. Roving tests for hank and unevenness as also the usual yarn tests were carried out on each day's production. Full quantitative and qualitative test results are given in Tables 4, 5, 6 and 7 of the Appendix, which also include the time spent on repair and maintenance of the charkhas.

In the preliminary tests in all about 106 count and lea tests were made while about 92 count and lea tests, 190 twist tests and a large number of irregularity tests were carried out on yarns obtained during the subsequent production tests. The total amount of roving spun on both the Sundar Model and the normal Ambar charkha was over $1\frac{1}{2}$ lbs.

Discussion of results

Preliminary Tests—TABLE 1:—The lea strength values corrected for deviation of actual count from nominal value indicate that yarns of satisfactory quality in 20's and 24's counts have been spun on the Sundar Charkha but in 28's count the yarn is of a rather poor quality. The generally high strength of 20's and 24's yarn are due to the added use of good cotton and good quality rovings made in the Pilot Spinning Mill. Though a slightly lower strength is generally expected in 28's count yarn as compared to 24's, it is not clear why they have such very low strengths. Considering the performance at medium and full top roller spring pressures, except in the case of 28's count yarn spun from 3.5 mill roving on the flanged bobbins with a draft of 8.0, there is a general tendency for yarns of high strength to be spun when full top roll spring pressure is employed instead of the medium pressure. Though not clear, the strength values of yarns spun on flanged bobbins also show an increasing trend as compared with yarns of the same counts spun on the paper bobbins.

TABLE 2.—The data of yarn strength collected on the Sundar model as well as the normal Ambar charkha for the two days, on 20's and 28's count yarns indicate a somewhat higher yarn strength for the normal Ambar charkha in case of 20's count as compared with that for the Sundar Model. The validity of this conclusion will be further seen in the other experiments to be discussed presently. Due to some unknown discrepancy in the adjustment of charkha draft or for some other reason, a coarse count 23.5 was obtained on the normal charkha from a 3.5 mill roving. Due to the inaccuracy of strength corrections for large differences between the nominal and actual counts, these have not been made.

TABLE 3.—It will be seen from the figures for the average count that the yarn in general is coarser than what is expected with the hank of roving fed and draft adjusted, viz. about 19's & 19.5's. Even after giving due consideration for twist contraction it is seen that full draft is not exercised on the rovings. This will be indicated by the difference between the theoretical and actual drafts at the charkha. The turns per inch values as observed on a limited number of samples are quite low.

Considering all these factors it appears that there are chances of cord slippage in the drive from the main handle wheel to the other moving parts. The yarn strength corrected to a nominal count of 18's, is good on both the days with all the treatments (remembering that mill roving is used as a raw material and the various hank rovings made from it on the *Belani*). There is no definite pattern of yarn strength with draft. The percent mean deviations, as observed on the Fielden Walker Evenness Tester at a material speed of 5ft/minute do not also show any consistent trend between treatments. Yarns produced on both days from different hank rovings and corresponding drafts are fairly even.

Comparative production and quality test

As mentioned before, out of the twelve days devoted to this programme, six days were spent in making enough of 2·5 hank rovings (including cleaning and opening operation on the *Dhunai Modhia*) and the other six days in spinning the rovings thus made on the Sundar Model as well as the normal Ambar charkha. On each of these six days spinning was done on both the charkhas one after another, by the same worker. Time utilised in hours by the worker for processing one pound of cotton through the *Dhunai Madhia* and *Belani* on each day as also the per cent waste removed in both these units are shown in Table 4. The average hank roving as seen from the table varies very little from day to day while the evenness of roving is also satisfactory. In Table 5 the average weight and length of yarn content per bobbin on both the charkhas, along with the respective daily and breakage rate are shown. Excepting on two days (9th and 11th), more end breakages per hour have been observed on the Ambar charkha than on the Sundar Model, the average rate for the former being 4·4 and for the latter 3·8. The breaks includes those accruing at the spindle tip, at the ring and those due to roller lapping, as also the multiple breaks. The com-processed daily on each of the two charkhas. Excepting on two charkhas is shown in Table 6 which also gives the weight of roving processed daily on each of the two charkhas. Excepting on two days i.e. on 11th and 16th the actual spinning as well as the total time utilised per pound of roving is less in the case of Sundar Model charkha than in the case of the normal unit. Average spinning and total time are 7·6 and 11·2 for Sundar Model and 9·2 and 12·6 for the normal Ambar charkha, respectively.

The decrease in production time as observed from the limited data available on the Sundar Model in comparison to the observations on the Ambar charkha, may be largely attributed to the Sundar charkha's very easy running involving a lesser amount of fatigue to the worker, though the average time spent on repair and maintenance was rather high in this case. The corresponding times spent on the two charkhas in regard to maintenance and repair are shown in the last two columns of Table 6. The yarn count, strength, unevenness and turns per inch results for the yarns spun on both the charkhas are given in Table VII. The correctedlea strength of yarns spun on the normal Ambar charkha is higher than that spun on the Sundar Model on all the days excepting the last, (16th), when the reverse is true. The yarn unevenness as given by the percent mean deviation figures indicate consistently a decrease in unevenness of yarns spun on the Sundar Model charkha as compared with the one spun on the normal unit. Considering the average daily turns per inch on yarn spun on the two charkhas it is seen that there is a substantial loss in the spindle speed due to slippage on both the machines, but to a larger extent on the Sundar Model. Thus the average turns per inch for six days is 14·0 for the Sundar Model and 16·5 for normal unit, whereas the expected value is about 20.

GENERAL COMMENTS.

The following comments on the performance of the Sunda: charkha are offered in the light of the present studies:—

1. Yarns of 18's, 20's and 24's count with satisfactory quality could be made on the charkha from rovings of Vijay cotton made either in Pilot Mill or on the Belani under optimum conditions. The 28's count yarn made from roving of Vijay combed cotton however showed a low lea strength.
2. Any decrease in the top roller spring weighting from its present maximum value (when the check nut is tight), has a tendency to decrease the yarn quality. It is not clear whether the present maximum weighting on both the top rollers as well as on either of them is optimum or not. Further tests should be made to verify this aspect. It is also essential to protect the spring strip used for weighting from any harmful effects of climate.
3. Though the flanged bobbins supplied with the charkha show indications of giving yarn of high strength they have to be improved further in order to eliminate the end breaks they cause due to the yarn touching the top flange-edge before it is wound on to the bobbin. This difficulty compels one to use rather light travellers (in order to get large diameter balloons) with the natural result that the bobbins are wound loose.
4. There seems to be a good amount of slippage in the moving parts of the charkha commencing from the main handle wheel. This may be due to the frequent stretching of the curtain spring used for the drive. During the present study this spring had to be cut twice and repieced in order to bring in the desired amount of tension. It would be probably useful to try a larger diameter handle wheel than the one employed at present and reduce the total number of pulleys used as far as possible.
5. The existing system of maintaining the spindle band tension is not very sound. Since the wooden pulley driving the spindles has only three grooves of different diameters for each spindle, there is no scope for maintaining the band tension continuously over a long time. A continuous maintenance of tension is preferable to this frequent adjustment, as one does not know when the band tension has changed.

The 3/16" diameter wharve used on the spindles seems to be too small and assists in increasing the slippage. A larger wharve diameter has therefore to be used. It is also in accordance with the general principles of working of ring frames to have the same wharve diameter but enable changes to be made in the turns per inch possible to suit the different counts, by varying the front roller delivery. With this arrangement, for coarse counts the front roller speed or in other

words production has to be increased in order to incorporate less twist in the yarn. On this charkha there is a rather limited scope for varying the front roller delivery considering the fact that it should be possible to change the turns per inch from about 14.0 to about 26.0 (for counts from 12 to 32's). There is enough reason to believe from the data available that there is a substantial reduction in the spindle speed due to slippage.

6. There is a tendency for yarn spun on the normal Ambar charkha to show higher strength than that on the Sundar Model. This may be partly due to the greater loss in turns per inch suffered by the yarn spun on the latter. The yarn evenness is, on the otherhand improved by the Sundar Model, probably on account of the smooth and frictionless running of the drafting rollers.
7. Due to the very easy running of the Sundar Model by the use of a number of locally made ball-bearings, it is possible to spin more yarn on this machine than on the normal charkha, in a given time.
8. No tests have been made here to see the stability and durability of the ball-bearings used. It is essential to study this aspect carefully before establishing the suitability of the type of ball-bearings used.
9. It is necessary to make proper arrangements to make the charkha suitable for spinning short, medium as well as long staple cottons. At present there is a fixed centre to centre distance between the rollers but it is necessary to have separate roller stands with other centre to centre distances also, in order to have the facility for processing a range of cottons.

These investigations have been completed on only one type of cotton spun to three counts and only one charkha operated by a single worker has been used for a limited time. This being the case the conclusions drawn are mainly indicative. It would be very useful to study the performance of a larger number of charkhas operated by an equally large number of workers spinning different cottons to possible counts over a longer duration, after the model is put in its final form. Such a bulk study would obviously give more valid information regarding the quality and the quantity of the yarn prepared on this machine.

SD/- B. K. VAIDYA,
Assistant Director,

Physics & Physical Chemistry Division.

SD/- B. R. RAMASWAMI,

Senior Scientific Officer,
Liaison Division.

ATIRA REPORT

TABLE I.

Count, Lea Strength and Irregularity of yarn spun on the Sundar Model of Ambar Charkha using different drafts, hank rovings, bobbins and top roll Spring pressure.

Date	Cotton Variety	Ag. mark	Mill roving hank	Top roller spring pressure	Drafts	Bobbin	No. of leas tested	Nominal count	Maximum count	Mini- mum count	Average count	Maxi- mum strength	Mini- mum Strength	Minimum Average strength	Strength corrected for nominal count	Percent mean devia- tion
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
23-4-56	Combed	3.5	Medium	7	Flanged	8	24	24.5	21.7	23.1	87.0	72.0	78.1	73.9	11.24	
24-4-56	"	3.5	"	7	Paper	4	24	23.5	22.4	23.0	83.5	69.0	76.8	72.1	11.67	
21-4-56	"	3.5	"	8	Flanged	4	28	29.0	27.0	27.8	31.0	19.0	24.0	23.6	..	
22-4-56	"	3.5	"	8	"	8	28	32.0	29.1	30.7	39.0	20.5	27.6	33.4	12.54	
27-4-56	"	2.5	"	8	"	4	20	20.2	19.6	19.9	106.0	81.5	97.1	96.4	10.38	
25-4-56	"	3.5	"	8	Paper	4	28	31.2	29.4	30.3	37.0	30.0	32.5	37.8	13.30	
27-4-56	"	2.5	"	8	Paper	4	20	19.7	19.4	19.6	102.0	57.0	88.6	86.1	10.49	
25-4-56	"	3.5	Full	7	Flanged	4	24	24.6	23.7	24.1	78.5	72.0	75.5	77.3	12.46	
21-4-56	"	3.5	"	8	"	2	28	28.7	28.2	28.4	26.0	15.5	20.8	21.6	..	
24-4-56	"	3.5	"	8	"	8	28	29.2	27.4	28.5	51.0	26.0	34.1	35.3	12.30	
26-4-56	"	2.5	"	8	"	4	20	19.7	19.2	19.5	116.0	90.5	102.4	98.9	..	
23-4-56	"	3.5	"	8	Paper	8	28	30.9	28.6	29.7	41.5	27.0	34.4	38.4	11.99	
26-4-56	"	2.5	"	8	"	4	20	20.3	19.5	19.9	101.5	95.0	98.6	97.9	..	
25-4-56	"	2.5	"	10	Flanged	4	24	28.8	23.7	25.7	78.5	58.5	71.5	79.0	12.10	
25-4-56	"	2.5	"	10	Paper	4	24	26.0	23.7	24.5	78.5	43.0	66.9	69.0	11.47	

A TIRA REPORT

TABLE 2
Comparison between yarn count, Lea strength and irregularity of yarns spun on the Sundar Model (S) and the normal Anbar Charkha (A).

Date	Cotton	Roving hank	Top roller spring pressure	Draft	Bobbin	No. of less tested	Nominal count	Maximum count	Minimum count	Average count	Maximum strength	Minimum strength	Average strength	Corrected strength for nominal count	Per cent mean deviation
1-56	Vijay	2.6 Belni Roving	Full Pressure on top rollers of Sunder Model	8	Paper	4	20 23.0 20.6 21.0 19.2 21.8 20.0 83.0 89.0 59.0 74.0 67.5 81.5 77.0 81.5 14.10 16.14	S A S A S A S A S A S A S A S A S A S A	S A S A S A S A S A S A S A S A S A S A	S A S A S A S A S A S A S A S A S A S A	S A S A S A S A S A S A S A S A S A S A	S A S A S A S A S A S A S A S A S A S A	S A S A S A S A S A S A S A S A S A S A		
2-5-56	Vijay Ag. mark (carded)	3.5 Mill Roving	do.	8	Paper	4	28 27.2 24.3 26.7 22.7 27.0 23.5 53.0 75.0 33.0 60.0 42.4 66.5 39.7							14.78 13.6	

TABLE 3

ATTRA REPORT

Count, Lea Strength, Irregularity and turns per inch of yarns spun on the Sundar Model using different roving hanks and drafts

Date	Roving hank	Theoretical draft in Charkha	No. of leas tested	Maximum count	Minimum count	Average count	Maximum strength	Minimum strength	Average strength	Corrected strength	Per cent deviation	Per cent deviation	*Average T.P.L.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
23-5-56	.	12	10.5	4	18.0	17.6	17.8	114.0	96.5	106.0	104.4	10.90	15.9
23-5-56	.	10	9.7	4	19.2	17.9	18.5	107.0	90.0	97.7	101.5	12.08	14.6
23-5-56	.	8	7.0	4	17.2	16.5	16.9	123.0	116.0	118.7	109.0	11.04	15.3
22-5-56	.	12	10.6	4	18.3	17.9	18.1	104.5	97.0	101.6	102.4	12.29	16.1
22-5-56	.	10	9.3	4	18.0	17.3	17.7	119.0	104.5	113.5	111.0	11.55	16.1
22-5-56	.	8	7.3	4	17.7	17.1	17.5	119.5	103.0	107.9	103.8	11.51	14.0

*Per cent mean deviation determined on the Fielden Walker Evenness Tester with a material speed of 5 ft./minute.

ATIRA REPORT

TABLE 4

Effective time required, in hours, to process one pound of cotton through Dhunai Modhia and Belani and the Percent Waste removed at each of the two stages with Average roving hank and its irregularity.

Date	Effective time in		Percent waste in		Percent waste in		Average roving		Percent mean* Deviation of roving
	1	2	3	4	5	6	7	8	
		hours for cleaning and carding one lb. Cotton on Dhunai Modhia	Effective time in hours for making roving from one lb. cotton Belani	Percent waste in cleaning and carding	Percent waste in Belani	hank			
3-5-56	.	5.0	7.8	10.0	5.6	2.52	..		
5-5-56	.	5.0	9.5	5.0	2.6	2.56	8.17		
8-5-56	.	5.6	14.3	8.8	3.6	2.60	9.04		
10-5-56	.	9.2	13.6	4.2	4.5	2.60	8.53		
12-5-56	.	4.2	10.0	8.3	4.2	2.56	..		
15-5-56	.	4.4	8.9	5.6	5.6	2.56	..		

*Percent mean deviation determined on the Fielden Walker Evenness Tester at a material speed of 5 ft./minute.

A.T.I.R.A.

TABLE 5

Comparison between the average Weight and Length of Yarn wrapped per bobbin and end breaks in spinning on four Spindles per hour, as observed on the Sundar (S) and the Normal Ambar Charkha (A).

Date	Average weight/bobbin (Tola)		Average length in yards		Breaks per effective hour per four spindles including multiple breaks.	
	S	A	S	A	S	A
4-5-56	.	0.50	205.8	210.0	2.0	3.2
7-5-56	.	0.75	204.5	311.8	2.0	4.0
9-5-56	.	0.75	299.2	335.1	4.0	2.7
11-5-56	.	0.63	284.4	295.0	6.0	4.0
14-5-56	.	0.75	330.7	221.6	5.3	8.0
16-5-56	.	0.60	259.6	221.6	3.6	4.7

S :—Sundar Charkha

A :—Ambar Charkha.

TABLE 6

Yarn production in hours pound on the *Sundar (S)* and the *Normal Ambar Charkha (A)*

Date	Weight of roving spun (Tolas)		Time for spinning one lb. of roving (hours)		Total time including the mis- cellaneous for one lb. (hours)		Time for repair and mainten- ance (Minutes)	
	S	A	S	A	S	A	S	A
4-5-56 . . .	4	4	10.0	12.5	14.2	16.7	5	20
7-5-56 . . .	6	6	6.7	8.3	9.5	11.1	5	5
9-5-56 . . .	6	6.5	8.3	9.2	11.3	11.6	30	7
11-5-56 . . .	2.5	2.5	8.0	8.0	12.5	12.5	0	0
14-5-56 . . .	6	2	5.0	10.0	7.6	14.0	0	15
16-5-56 . . .	12	8	7.5	7.5	12.0	9.8	15	0

S :—Sundar Charkha

A :—Normal Ambar Charkha

TABLE 7

Count, Lea Strength, Irregularity and turns per inch characteristics in the Sundar (S) and the Ambar Charkha (A) Yarns

Date	No. of less tested.	Maximum count	Minimum count	Average count	Maximum strength	Minimum strength	Average strength	Strength corrected for 20 normals	Per cent mean deviation (a)	Turns per inch (b)	No. of twist tests
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III

COPY OF TEXTILE COMMISSIONER'S OFFICE LETTER No. P&D/UNEC/15/892-3 DATED 22ND AUGUST, 1955 ADDRESSED TO THE DIRECTOR TECHNOLOGICAL LABORATORY, MATUNGA.

SUBJECT:—*Experiments with Ambar charkha*

I am directed to furnish the following points which might be of use to you while deciding a comprehensive scheme for conducting experiments on Ambar charkha.

- (1) Mechanical condition i.e. whether the charkha is mechanically sound and can stand the strain of continuous operation.
- (2) Whether the charkha has suitable arrangements for processing cottons of different staple length and for varying the count, the draft, the twist etc.
- (3) The production per spindle for 8 hours for different counts and the efficiency obtainable when operated at a speed which can be maintained over a long period.
- (4) The range of count of yarn that can be spun from important varieties of cotton.
- (5) The evenness of the yarn spun, its cleanliness, neppiness, the regularity of flow of twist and the count per length product.
- (6) The percentage of waste produced for the different types of cotton.
- (7) The number of men required on the various processes and the production that is possible in poundage.
- (8) The statistical analysis of the data obtained and comparison of the same with data for mill yarn.
- (9) The quality of cloth woven on handloom out of yarn produced on Ambar charkha and the difficulties, if any, experienced in weaving of this yarn.
- (10) Comparison of cloth produced from yarn produced by Ambar charkha with similar cloth produced on handloom from mill yarn.

We shall be thankful if you could enlighten us about the scheme when you are in a position to finalise it.

COPY OF LETTER No. KHE/AMBAR/248 DATED 17-9-1955 FROM ALL INDIA KHADI AND VILLAGE INDUSTRIES BOARD, QUEENS ROAD, BOMBAY, ADDRESSED TO SHRI A. C. CHAUDHURI, DEPUTY DIRECTOR, OFFICE OF THE TEXTILE COMMISSIONER, BOMBAY.

SUBJECT:—*Experiments on Ambar charkha yarn.*

In continuation of this office letter No. KHE/Ambar dated 12th September, 1955 I have to state that our Shri Puratan Buch had an opportunity of contacting Shri Nandlal Patel the expert on Ambar charkha of the Sarva Sewa Sangh, Billimora recently. He has suggested the following points to be considered by the Textile

Technological Laboratories, which are experimenting on the Ambar charkha yarn.

- (1) The Ambar charkha yarn must be wetted and hank allowed to be dried on the falka, and then only it should be taken for laboratory test: In spinning mills the yarn is humidified. Wetting of the yarn would thus be akin to that process. The yarn which is not moistened as above may not give the actual results.
- (2) The twist of the Ambar charkha yarn should also be tested and the Khadi Board should be informed regarding the percentage of unevenness in the twist, in comparison with that of the mill yarn.
- (3) The Textile Technological Laboratories should help us in yet perfecting the device and process of spinning yarn on the Ambar charkha, by suggesting technical improvements, if it is found necessary, while testing yarn in the laboratories under different conditions.

It is requested that the above suggestions from the Sarva Sewa Sangh on Ambar charkha will be circulated to the experimenting laboratories for favour of information.

COPY OF THE TEXTILE COMMISSIONER'S OFFICE LETTER No. P & D/ UNEC/15/3401 DATED 16TH JANUARY, 1956 ADDRESSED TO THE DIRECTOR, THE AHMEDABAD TEXTILE INDUSTRY'S RESEARCH ASSOCIATION, NAVRANGPURA, AHMEDABAD-9.

SUBJECT:—*Experiments on Ambar charkha.*

We had been intimated by the All India Khadi and village Industries Board and the Ministry of Production to request you to devote special attention towards examining the Ambar charkha sets for immediate adjustments or improvements to make them more efficient instruments of production. This is in addition to the points furnished to you for consideration in this office letter of even number dated 22/23rd August, 1955. We shall be grateful if you will kindly consider this aspect and favour us with your opinion at an early date.

COPY OF THE TEXTILE COMMISSIONER'S OFFICE LETTER No. P&D/UNEC/19/3403 DATED 16TH JANUARY, 1956 ADDRESSED TO THE DIRECTOR TECHNOLOGICAL LABORATORY, INDIAN CENTRAL COTTON COMMITTEE, ADENWALA ROAD MATUNGA, BOMBAY-19.

SUBJECT:—*Experiments on Ambar charkha.*

We had been intimated by the All India Khadi and Village Industries Board, and the Ministry of Production to request you to devote special attention towards examining the Ambar charkha sets for immediate adjustments or improvements to make them more

efficient instruments of production. This is in addition to the points furnished to you for consideration in this office letter of even number dated 22nd August, 1955. We shall be grateful if you will kindly consider this aspect and favour us with your opinion at an early date.

Copy to:—

Ministry of Production, Thapar House, Queensway, New Delhi. This has relation to the D.O. No. 12-Cot. Ind.(1) (3)/55 dated 6th January, 1956 from Mrs. P. Johari addressed to Shri Nanjappa. A copy of this office letter of even number dated 22nd August, 1955 furnishing various points in connection with the Ambar charkha experiments is enclosed for information.

IV

A NOTE ON "KHADI".

Hand-spinning and hand-weaving have been India's traditional village industries. It is a matter of record that the spinning wheel (Charkha) was being universally plied in most Indian homes. Every process from fibre to fabric was done by hand. The quality and count of yarn and the texture and fineness of the cloth woven by the Indian spinners and weavers constituted the wonder of the old world. India had a large and extensive export trade of cotton textiles. Even as late as 1702, the import of Indian cotton fabrics into England alone amounted to £1,053,725. Foreign visitors spoke in glowing terms of texture of Indian cottons.

2. The deterioration, decay and total extermination of India's textile industry can best be summed up in the words of Karl Marx who wrote in 1850, as under:—

"The handloom and spinning wheel, producing their regular myriads of spinners and weavers were the pivots of the Indian Society. It was the British intruder who broke up the Indian handloom and destroyed the spinning wheel. England began with driving the Indian cottons from the European markets; it then introduced twist into Hindustan and in the end inundated the very mother country of cotton with cottons. British steam and science uprooted, over the whole surface of Hindustan, the union between agriculture and manufacturing industry."

The imports of British piecegoods into India steadily expanded and simultaneously the export of raw cotton from India to U.K., increased.

3. The Indian Textile Industry came to its own with the rising tempo of the liberation movement. The Swadeshi movement gathered momentum with the dawn of the twentieth century Khadi (hand-spun and hand-woven cloth) was then unheard of and handlooms worked with mill yarn. It was in the year 1916, when Gandhiji returned to India from South Africa that he talked about Khadi. An earnest and impatient quest for the charkha and the handspinner began. It was not till 1917, that wheels and spinners

were found in Vijaypur village in Baroda. Most homes in Vijaypur had wheels but none plied them. Spinners were prepared to start again but had to be supplied with cotton slivers. Neither Gandhiji nor his associates at that time, had any knowledge of processing of cotton. It was only after further quest that some idea of it could be had. A start was made with mill slivers.

4. By 1921, Khadi began to be produced and worn. The All India Congress Committee met at Bezwada at the end of March 1922 and passed a resolution urging the collection of one crore of rupees by the enlistment of one crore of Congress members and the manufacture and operation of twenty lakhs Charkhas. It was at Bezwada that Gandhiji discovered that in Andhra women grew cotton in their back-yards, cleaned and carded it and spun with the livers so prepared on their own charkhas made decades previously. It was further discovered that in Andhra there prevailed an ancient custom of presenting to brides fine charkhas as marriage gifts. In fact, in Andhra the marriage custom required a yoke to be placed on the necks of the bride and bridegroom and a charkha to be presented to the bride as if to show that they were to plough the land and spin the yarn and figuratively to work as team. There is evidence to show that weaving was an accomplishment much valued in the matrimonial market. To quote from the Kanungo Committee report:—

"Unique among the States of India, Assam has
 "a strong domestic weaving tradition and it is
 "said even today it would be difficult for a
 "girl in Assam to get married if she does not
 "herself weave her bridal clothes. Indeed, the
 "Committee, during its tours, actually saw a
 "girl student of the Gauhati University weaving
 "her own clothes during the summer holidays."

5. Khadi weaving became a primary condition for congressmen and as the tempo of the Non-Co-operation Movement rose, the impetus to Khadi also grew. The Khadi movement started as a part of the Congress movement and functioned within its orbit and framework. Production and sale of Khadi was undertaken by the Working Committee. This activity was started in 1921, with a capital of about Rs. 3 lakhs. Khadi soon caught the imagination of the masses and by 1923, investment in Khadi rose to Rs. 23 lakhs. Towards the end of 1923, the Congress set up an All India Khadi Board to guide the Pradesh Boards and to co-ordinate their activities.

6. The activities expanded to such an extent as to necessitate the setting up of an organization exclusively for the development of Khadi Industry. Accordingly, in September 1925, the All India Congress Committee decided to set up an independent body which, though an integral part of the All India Congress, would function with complete autonomy. This new body was known as the All India Spinners Association (Charkha Sangh). The assets and funds of the All India Khadi Board and the Pradesh Boards were made over to the new body.

7. The work of the Charkha Sangh can be divided into three periods from the point of view of the special emphasis laid by it on the different aspects of the Charkha. Each period marks a distinct progress towards one or other aspects of the Charkha. Upto 1933, the Khadi work was more or less of a commercial nature affording relief to the poor and the needy. Then came the second period which extended upto 1943. During this period, the idea of paying a living wage was introduced. After 1944, the third phase started. The emphasis during this phase, came to be on the Charkha as the symbol of truth and non-violence, self-sufficiency in the essential needs of living etc.

In the first ten years 1925—35, the activities centred round the propagation, production and sale of Khadi. The commercial aspects predominated. The primary object was to spread the activity as wide as possible in order to provide employment to the needy and the destitute in rural areas. As Khadi became popular, private agencies began to intrude into the life of the poor villager. These agencies exploited the cheap and destitute labour and indulged in profiteering. This showed the enormity of the poverty of the rural population and its readiness to take to any occupation which supplemented their income even by a fractional degree. All the same exploitation of the poverty of rural masses for private profiteering was a disturbing factor. In 1935, the Charkha Sangh accepted the principle of a fair wage for the spinners and decided that a spinner should get at least one anna per hour of spinning. Increased wages meant higher costs of production. The introduction of the fair wage system made Khadi dearer and production had therefore, to be curtailed. Khadi produced under the fair wage system alone was regarded as pure Khadi and was certified as such by the Sangh. In September 1939, the world war broke out. War shortages gave a fillip to Khadi. What is significant is that mill cloth prices began to soar but Khadi continued to be sold at its fixed price without any profit element. There was a time when Khadi sold cheaper than mill cloth. With the incarceration of political leaders, Khadi work suffered. In 1945, the whole concept of Khadi work was revolutionized. The guiding principles were that "instead of depending on organizations that could be destroyed, the charkha should find its own place in every home. Instead of the spinning wheel being plied ordinarily for wages, it should be plied with a view to self-sufficiency in cloth and with a full understanding of the implications of spinning". Production policy was orientated to the achievement of self-sufficiency. "Let all those who spin wear Khadi and let no one who wears Khadi, fail to spin."

8. In February 1953, the All India Khadi and Village Industries Board was constituted by Government. The Board is responsible "for preparing and organizing programmes for the production and development of Khadi and Village Industries including training of personnel manufacture and supply of equipment, supply of raw materials, marketing and research and study of the economic problems of different village industries. The Board will also function as a clearing house of information and experience relating to these industries." The Khadi Board constituted by Government took

over from the Sarva Seva Sangh the functions relating to the production and sale of Khadi. Thus, another phase in the history of Khadi started from 1953.

9. The Khadi Board has implemented the programmes for the predecessor of the Khadi Industry on the lines laid down by its predecessor—the Charkha Sangh. The programmes of the Board provide for the production and sale of Khadi through the centres run by it and by registered bodies. The Board is helping the production centres in more than one way. The Khadi Board has a non-revolving capital of Rs. 140 lakhs at its disposal which is utilized for the purchase in bulk of cotton and other raw materials required for the production of Khadi. Supplies of these materials are made to the production centres according to their requirements on no-profit and no loss basis. This arrangement ensures supplies to centres at whole-sale rates. The Khadi Board also gives loans to production centres, which are interest free and are re-payable and renewable on easy terms. The loans are ordinarily tenable for one year, but if repayment is made of 1/10th of the loan after one year, it is renewed for another year. The production centres are also given production subsidy to serve as an incentive which works out roughly to one anna in the rupee worth of production of Khadi. Implements required for the production of Khadi are supplied to the Centres on subsidized basis, that is to say 50% of the cost. All these financial measures are intended to reduce the cost of production of Khadi. But for these measures, the price of Khadi would be higher than what it is. It is difficult to calculate the exact effect of these measures on built-up cost of Khadi.

10. According to the estimates of the Khadi Board, overhead charges, that is to say expenditure involved in the purchase of cotton, supplying it to spinners, collecting the yarn and supplying it to weavers and then collecting the woven material and marketing it, comes to about 18½% or annas 3 in the rupee. The problems of Khadi production are peculiar. Unlike composite mills, which have spinning, weaving and finishing departments at one place, Khadi centres have no fixed places of work where labour is employed for fixed hours. Cotton is distributed to spinners who work in their cottages and periodically turn up to account for the yarn and to get their wages. The yarn is then distributed to weavers who are generally located at some distance (the Khadi Board has got a scheme for the rehabilitation of weavers in spinning centres). Through the Khadi Board, Government pays rebate on all retail sales of Khadi at the rate of annas 3 in the rupee. This rebate is intended to reduce price disparity between Khadi and mill cloth.

11. The price of Khadi per unit of production is higher than that of mill cloth. It is argued that the higher price which a consumer pays goes to the unemployed or under-employed artisan and is not to swell the profits of the capitalists. According to the Millowners' Association, "out of every rupee representing the income of cotton mill Company, wages and salaries amount to about four annas." On the other hand, in every rupee of Khadi produced, wages alone come to ten annas and six pies. There is no wasteful expenditure on intermediary profiteering in the Khadi industry.

Although there is price disparity between Khadi and mill cloth, there are sworn Khadarites who would buy Khadi whatever its price may be. As observed by the Kanungo Committee "use of Khadi by a person for himself and for his family is a matter which has an ethical, philosophical and emotional content, transcending economic aspect." The higher price which a consumer pays for Khadi is, in effect, his contribution to a national programme—the programme being that of finding remunerative, productive work for large numbers who are either under-employed or wholly unemployed in the villages which constitute India.

12. As mentioned earlier, the Charkha Sangh adopted 'Fair Wage' policy in the production of Khadi. In order to distinguish Khadi which was produced in conformity with the principles laid down the Sangh introduced the scheme for the certification of Khadi. The scheme covered certification of Khadi production centres, certification of the produce and certification of sales depots (bhandars). The Khadi Board has continued the scheme and is maintaining a central Certification office in Lucknow. Rebate of 3 annas in the rupee is allowed on the sale of certified Khadi at certified *Bhandars* only.

13. There is reason to believe that spurious Khadi has been sold from time to time and is still being sold. In 1950, the Khaddar (Protection of name) Act 1950 was passed. Under this Act, the words "Khaddar" and "Khadi" whether in Hindi or any other language or English when applied to any woven material, shall be deemed to be a trade description within the meaning of the Indian Merchandise Marks Act, indicating that such material is cloth woven on handlooms in India from cotton, silk or woollen yarn handspun in India or from a mixture of any two or all of such yarns. This legislative measure as it stands at present, is ineffective as there is no adequate machinery for the prosecution of offenders. At the time the legislation was enacted, the intention was that complementary legislation would be enacted by the State Legislatures to provide for the machinery for the prosecution of those charged with the sale of spurious Khadi. A model sale of Khaddar Bill has been prepared which would be finalized shortly in consultation with the interests concerned. Once this legislation is enacted, there would be adequate machinery for the prosecution and punishment of those charged with the sale of spurious Khadi.

14. The programmes for the development of Khadi and other handloom industries are being financed from the cess of three pies ($\frac{1}{4}$ anna) per yard levied on mill cloth under the provisions of the Khadi and other Handloom Industries Development (Additional Excise Duty on cloth) Act, 1953. The arguments in favour of the levy of excise duty on mill cloth are summed up by the Karve Committee in the following words:

"The Excise duty in this context may be said to have three objectives. The first is the raising of funds from the consumers of a product for rehabilitating a section of the producers of that product. In so far as the specially large investment of national resources in a particular section of industry has afforded a differential

advantage to consumers of the products of that section, the rehabilitation of the more backward sections in the same industry can reasonably be accepted as a responsibility by them. The second objective is that of draining away from *entrepreneurs* in the advanced section the extra profits that will accrue to them from national policy. Limitation of further expansion or increased production will create for the products of this section a closed market in which the *entrepreneurs* in this Section will, unless prevented by measures of direct control, charge higher prices. As this is a result of total national policy, there is no reason why the surplus flowing from these higher prices should be allowed to remain with these *entrepreneurs*. A third objective or rather result of the levy of the excise would be the creation of price differentials in favour of the small scale and village industry".

As regards the level of the excise duty, the Kanungo Committee considered the suggestion of equating mill and handloom prices by the levy of a heavy excise duty or cess on the mill sector but recommended categorically that such a device was not feasible. In the second Five Year Plan, programmes for the development of Khadi and handloom industries would be undertaken on a larger scale involving expenditure of more funds. A proposal that the rate of cess on mill cloth be increased by the amendment of the Act of 1953, is already under consideration.

15. Development of Khadi industry is now the responsibility of Government which is being discharged through the Khadi Board. Government itself is the biggest single purchaser of Khadi.

16. Two tables are attached:—

- (i) showing the year-wise production and sale of Khadi, and
- (ii) showing the year-wise purchases of Khadi made by Government.

TABLE I

Showing Year-Wise Production and Sale of Khadi.

Year	Production in Rs.	Production in Sq. Yds.	Sales in Rupees
1924-25	19,03,034	..	33,61,061
1925-26	23,77,670	..	29,99,143
1926-27	24,06,370	..	33,48,794
1927-28	24,16,382	..	33,08,643
1928-29	31,55,437	62,61,812	39,41,077
1929-30	54,11,610	1,16,76,930	66,98,813
1930-31	72,15,402	1,75,76,576	90,94,132
1931-32	44,78,195	1,15,06,883	58,12,537
1933	38,68,810	1,02,24,344	51,75,926
1934	34,06,380	95,80,986	46,67,125
1935	32,44,105	85,61,737	46,90,013
1936	24,28,257	62,32,697	34,47,741
1937	30,15,639	72,69,817	45,32,721
1938	54,99,486	1,25,59,594	54,78,720
1939	48,29,610	1,08,95,608	64,13,002
1940	51,36,983	95,11,438	77,62,753
1941-42	1,20,02,430	2,15,84,076	1,49,85,510
1942-43	78,62,368	1,00,45,214	1,07,90,412
1943-44	1,27,52,233	1,08,80,739	1,32,61,640
1944-45	1,34,58,069	1,02,63,903	1,67,87,970
1945-46	70,63,219	52,76,995	1,04,86,530
1946-47	1,05,68,870	70,05,473	1,11,95,131
1947-48	65,74,689	43,51,646	72,46,604
1948-49	1,04,42,965	69,33,948	91,41,412
1949-50	1,11,40,936	71,59,407	1,34,50,166
1950-51	1,27,45,295	72,88,701	1,64,98,678
1951-52	(Authentic figures not available).		
1952-53	1,94,00,798	..	1,94,89,403
(Jan.-Dec. 1952)			
1953-54	2,44,36,121	1,22,55,318	1,82,84,511
1954-55	3,14,31,057	1,65,21,414	2,58,18,360
1955-56	3,13,26,811	1,61,42,861	2,44,02,733
(Up to Dec. 1955).			

TABLE II

Showing the Year-Wise Purchase of Khadi made by Government

Year	Value (Rs.)
(i) 1952-53	27,308
(ii) 1953-54	3,75,000
(iii) 1954-55	28,78,000
(iv) 1955-56	67,34,000